UNIVERSITY OF SANTA CLARA

Founded 1851

CATALOGUE 1961-62

University of Santa Clara

College of Arts and Sciences

College of Business Administration

College of Engineering

College of Law

Graduate Division

Teacher Education

School of Sacred Theology

To mould men after the model of the Man-God, and thus form them to serve their fellowmen, their country and their God; this is the ideal and the purpose of the University of Santa Clara.

OBJECTIVES

The Jesuit system of education aims to produce men who will possess sound judgment, high moral ideals, ability to evaluate critically, and keen social consciousness. The development of the student's character and his intellectual progress are the objectives of Santa Clara's educational system.

To accomplish its aim the University of Santa Clara bases its education on a solid core of integrated cultural courses. This core permeates all fields of major emphasis, thereby broadening and enriching professional fields. Thus every student, following his interests and aptitudes, receives instruction in language, philosophy, natural science, and social thought, according to a definite hierarchy of values and integrated into the pattern of Christian culture.

University of Santa Clara

CATALOGUE

for the

ONE HUNDRED and ELEVENTH YEAR

1961-1962

Member National Catholic Educational Association
Member Jesuit Educational Association
Accredited by the Western College Association
Member American Council on Education
Accredited by Engineering Council for Professional Development
Approved by the American Bar Association
Member Association of American Law Schools
Approved by the American Medical Association
Accredited by the American Chemical Society
Accredited by the State Bar of California
Member of American Association of
Collegiate Schools of Business Administration
Conference of Jesuit Law Schools
Member of Western Conference of Law Schools
Member of College Entrance Examination Board
Member of Association of American Colleges
Accredited by California State Board of Education

THE UNIVERSITY OF SANTA CLARA
SANTA CLARA, CALIFORNIA
APRIL ▪ 1961

UNIVERSITY OF SANTA CLARA CALENDAR*

1961-1962

1961

September

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Sept. 8, 10, 11: Freshman tests and orientation.

Sept. 9: Freshman registration.

Sept. 11: General registration (sophomore, junior, senior, law and graduate students).

Sept. 12: Instruction begins.

Sept. 14: Mass of the Holy Ghost—a class day.

Sept. 29: Last day for filing application for candidacy for the master's degree to be conferred January 1962.

October

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Oct. 20: Last day for seniors to file for candidacy for graduation in June 1962.

Oct. 23-27: Student evaluation period.

Oct. 30-31: Annual retreat.

November

S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

Nov. 1: All Saints Day, academic and administrative holiday.

Nov. 7: Annual Memorial Mass — a class day.

Nov. 22: Thanksgiving recess begins at 12 noon.

Nov. 27: Classes resume.

December

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Dec. 8: Feast of the Immaculate Conception, academic and administrative holiday.

Dec. 11: Last day for filing with the Graduate Committee the final draft of theses for the master's degree to be conferred in January 1962.

Dec. 18-Jan. 2: Christmas recess.

1962

January

S	M	T	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Jan. 3: Classes resume.

Jan. 9: Last day to submit pre-registration forms.

Jan. 12: Last day for fulfilling language requirements for master's degree.

Jan. 16-23: Semester examinations.

Jan. 24-30: Inter-semester recess.

Jan. 31: Freshman registration.

*All dates are inclusive dates.

UNIVERSITY OF SANTA CLARA CALENDAR*

1961-1962

1962

February

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

Jan. 31: Freshman registration.
Feb. 1: General registration (sophomore, junior, senior, law and graduate students).
Feb. 2: Instruction begins.
Feb. 22: Washington's Birthday, academic and administrative holiday.
Feb. 23: Last day to file for LL.B. degree in June 1962.
Feb. 23: Last day for filing candidacy for master's degree to be conferred in June 1962.

March

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Mar. 19-23: Student evaluation period.

April

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Apr. 13: Last day for filing with the Graduate Committee the final draft of theses for master's degree to be conferred in June 1962.
Apr. 19-23: Easter recess.
Apr. 24: Classes resume.
Apr. 27: Senior theses due.

May

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

May 4: Last day to file pre-registration forms.
May 23-June 1: Semester examinations.
May 30: Memorial Day and—
May 31: Ascension Thursday, academic and administrative holidays.

June

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

June 2: 111th Commencement.

*All dates are inclusive dates.

BOARD OF TRUSTEES

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AUSTIN J. FAGOTHEY
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VINCENT H. O'DONNELL

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PRESIDENT AND BOARD OF TRUSTEES
OF SANTA CLARA COLLEGE

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Secretary

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DR. SALVADOR V. CAMPISI

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MRS. CHARLES STRUB

MR. BENJAMIN H. SWIG

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President

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Assistant to the President

ALEXIS I. MEI, S.J.
Academic Vice-President
Dean, College of Arts and Sciences

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Vice-President for Student Services

CHARLES FREDERICK GUENTHER, S.J.
Vice-President for Finance

WALTER EDWARD SCHMIDT, S.J.
Vice-President for Public Relations

WILSON ALBERT ALDRIDGE, S.J.
Vice-President for Business Services

CHARLES JOSEPH DIRKSEN
Dean, College of Business Administration

ROBERT JAMES PARDEN
Dean, College of Engineering

LEO ALBERT HUARD
Dean, College of Law

WILLIAM A. HUESMAN, S.J.
Dean, School of Sacred Theology

WALTER J. KROPP, S.J.
Associate Dean, College of Arts and Sciences

ANTHONY FRANCIS FRUGOLI, S.J.
Administrator

ROGER DANIEL MCAULIFFE, S.J.
Student Chaplain

DAVID PAUL ARATA
Registrar

EDWARD RICHARD A. BOLAND, S.J.
Librarian

WILLIAM JOHN LOFTUS
Comptroller

EDWARD ALEXANDER AMARAL, M.D.
Director of Student Health

GERALD L. ALEXANDERSON (1958)
Instructor in Mathematics
B.A., University of Oregon, 1955; M.S., Stanford University, 1958.

O. ROBERT ANDERSON (1942)
Professor of Business Administration
B.A., University of Washington, 1934; C.P.A., State of Oregon, 1941; M.B.A., University of Washington, 1942.

WILLIAM A. ANTONIOLI (1960)
Lecturer in Law
A.B., University of Santa Clara, 1950; LL.B.,University of Santa Clara, 1953.

LOUIS I. BANNAN, S.J. (1953)
Associate Professor of Education and Psychology
M.A., Gonzaga University, 1938; S.T.L., Alma College, 1944.

FRANKLIN J. BARRY, M/SGT. (1957)
Instructor in Military Science.

JOHN W. BAXTER (1961)
Lecturer in Engineering
B.S., Louisiana State University, 1948; M.S., California Institute of Technology, 1950.

J. MARIUS BECCHETTI (1930)
Assistant Professor of Business Law
A.B., University of Santa Clara, 1925; LL.B., University of Santa Clara, 1926.

ALBERT C. BEESON (1953)
Lecturer in Business Administration
A.B., Stanford University, 1928; M.B.A., New York University, 1931.

EDWIN A. BEILHARZ (1936)
Professor of History
Director, Division of Social Studies
Chairman, Department of History
A.B., Creighton University, 1931; M.A., University of Nebraska, 1934; Ph.D., University of California, 1951.

LORENZO M. BELOTTI (1959)
Assistant Professor of Economics
B.A., Midwestern University, 1954; M.A., Midwestern University, 1955; Ph.D., University of Texas, 1960.

S. ROSS BERGANTZ (1959)
Director, Glee Club
B.A., San Jose State College, 1950.

( ) Denotes beginning of present service.

JAMES L. BLAWIE (1960)
Associate Professor of Law
B.A., University of Connecticut, 1950; A.M., Boston University, 1951; J.D., University of Chicago Law School, 1955; Ph.D., Boston University, 1959.

LOUIS F. BOITANO (1947)
Associate Professor of Business Administration
B.S.C., University of Santa Clara, 1947; C.P.A., State of California, 1947; M.A., Stanford University, 1952.

LLOYD L. BOLTON (1932)
Professor of Biology
B.A., University of British Columbia, 1922; M.A., University of British Columbia, 1924; Ph.D., Cornell University, 1932.

ROBERT O. BOWEN (1960)
Assistant Professor of English
B.A., University of Alabama, 1948; M.A., University of Alabama, 1950.

RICHARD A. BRANDT, SFC. (1959)
Assistant Instructor in Military Science

*JOHN B. BROLAN, S.J. (1960)
Associate Professor of Latin
A.B., Gonzaga University, 1927; M.A., Gonzaga University, 1928; S.T.L., Alma College, 1936.

EDWIN J. BROWN (1951)
Professor of Education, Chairman of Department
B.S., Kansas State Teachers College, 1922; M.A., Stanford University, 1925; Ph.D., Stanford University, 1928.

JOSEPH S. BRUSHER, S.J. (1957)
Professor of History
M.A., Gonzaga University, 1932; S.T.L., Alma College, 1939; Ph.D., St. Louis University, 1943.

MICHAEL BUCKLEY, JR. (1955)
Assistant Professor of Mathematics
B.S., United States Military Academy, 1923; M.S.E.E., Purdue, 1933.

WILLIAM G. BURMAN, S.J. (1950)
Associate Professor of Latin, Greek, Music
M.A., Gonzaga University, 1937; S.T.L., Alma College, 1942; M.A., Harvard University, 1949.

( ) Denotes beginning of present service.
* Indicates instructing at Sacred Heart Novitiate.

WILLIAM J. CAHILL, S.J. (1941)
Assistant Professor of Classics
A.B., Gonzaga University, 1931; M.A., Philosophy, Gonzaga University, 1932; S.T.L., Alma College, 1939; M.A., Classics, Stanford University, 1950.

RAYMOND F. COPELAND, S.J. (1959)
Professor of History
Director Summer Session
A.B., M.A., Gonzaga University, 1927; S.T.L., Alma College, 1935; Ph.D., St. Louis University, 1950.

**HARRY T. CORCORAN, S.J. (1948)
Professor of Dogmatic Theology
A.B., Gonzaga University, 1937; M.A., Gonzaga University, 1938; S.T.L., Alma College, 1945; S.T.D., The Pontifical Gregorian University, 1948.

DANIEL R. COWANS (1959)
Assistant Professor of Law
A.B., University of California, 1943; LL.B., University of California, 1950.

WILFRED H. CROWLEY, S.J. (1946)
Professor of Philosophy
M.A., Gonzaga University, 1932; S.T.L., Alma College, 1939.

FRANCIS J. CURRAN, S.J. (1958)
Instructor in Theology
B.A., Gonzaga University, 1941; M.A., Gonzaga University, 1943; S.T.L., Alma College, 1950.

**ROBERT H. DAILEY, S.J. (1956)
Associate Professor of Moral Theology
A.B., Gonzaga University, 1936; M.A., Gonzaga University, 1937; S.T.L., Bellarmine College, Zikawei, China, 1944; J.C.D., The Pontifical Gregorian University, Rome, 1951.

CHARLES H. DAWSON (1961)
Lecturer in Engineering
E.E., Cornell University, 1938; M.S., University of Rochester, 1941; Ph.D., Iowa State College, 1952.

JOSEPH F. DECK (1936)
Professor of Chemistry
Chairman, Department of Chemistry
A.B., St. Louis University, 1928; M.S., St. Louis University, 1930; Ph.D., University of Kansas, 1932;

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** Indicates instructing at Alma College.

CORNELIUS F. DEENEY, S.J. (1921)
Professor of Theology (Emeritus)
A.B., Gonzaga University, 1904; M.A., 1905; Ph.D., Gregorian University (Rome), 1923.

*GEORGE T. DENNIS, S.J. (1960)
Instructor in Greek and History
A.B., Gonzaga University, 1947; Ph.L., Gonzaga University, 1948; S.T.L., Alma College, 1955; Sc.Eccl. Or.D., Pontifical Institute of Oriental Studies, Rome, 1960.

CHARLES J. DIRKSEN (1938)
Professor of Business Administration
Dean of the College of Business Administration
B.S.C., St. Louis University, 1935; M.S.C., 1938.

HUGH C. DONAVON, S.J. (1929)
Associate Professor of Theology
M.A., Gonzaga University, 1919.

GRAHAM DOUTHWAITE (1959)
Assistant Professor of Law
B.A., 1933; LL.B., 1936, University of Witwatersrand; B.C.L., Oxford, 1940.

JOHN B. DRAHMANN (1954)
Associate Professor of Physics
Chairman, Department of Physics
B.S., St. John's University (Minnesota), 1943; Ph.D., St. Louis University, 1952.

*RALPH J. DRENDEL, S.J. (1959)
A.B., 1946, A.M., 1947, Gonzaga University; S.T.L., Alma College, 1954.

JOHN D. DRYDEN, S.J. (1958)
Assistant Professor of Economics
M.A., Gonzaga University, 1945; S.T.B., Alma College, 1953.

WILLIAM T. DUFFY, JR. (1959)
Assistant Professor of Physics
B.E.E., University of Santa Clara, 1953; M.S., Stanford University, 1954; Ph.D., Stanford University, 1960.

HAROLD M. EVERTON (1958)
Lecturer in Law
B.S., University of Oregon, 1948; LL.B., Golden Gate College, 1955.

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AUSTIN J. FAGOTHEY, S.J. (1932)
Professor of Philosophy, Chairman of Department
A.B., Gonzaga University, 1923; M.A., Gonzaga University, 1924.

**JOSEPH J. FARRAHER, S.J. (1951)
Associate Professor of Moral Theology
A.B., 1940, M.A., 1941, Gonzaga University; S.T.L., Alma College, 1948; S.T.D., The Pontifical Gregorian University, Rome, 1952.

THOMAS N. FAST (1957)
Assistant Professor of Biology
B.S., University of Santa Clara, 1949; Ph.D., Stanford University, 1960.

ROBERT J. FEERICK (1950)
Director of Basketball, Physical Education
B.S., University of Santa Clara, 1941.

CARL M. FISCHER (1959)
Assistant Professor, Director of Guidance
A.B., University of Illinois, 1939; M.Ed., Our Lady of the Lake College, 1959.

DAVID T. FISHER, S.J.
Assistant Professor of Theology
A.B., 1946, M.A., 1947, Gonzaga University; S.T.L., Alma College, 1954; S.T.D., Pontifical Gregorian University, Rome, 1959.

EUGENE J. FISHER (1954)
Instructor in Engineering
B.M.E., University of Santa Clara, 1950.

PETER M. FITZGERALD (1960)
Lecturer in Engineering
B.S., Seattle University, 1955; M.S., Stanford University, 1956; Ph.D., Stanford University, 1960.

FRANCIS R. FLAIM (1938)
Professor of Biology
Chairman, Department of Biology
A.B., University of Utah, 1936; M.A., University of Utah, 1938; Ph.D., Stanford University, 1956.

EDMUND C. FLYNN (1930)
Professor of Engineering (Emeritus)
B.S., Colorado College, 1919; M.S., Iowa State College, 1925.

JULIAN F. S. FOSTER (1957)
Assistant Professor of Political Science
B.A., Oxford University, 1951; M.A., Oxford University, 1955.

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** Indicates instructing at Alma College.

SAMUEL A. M. FRANCIS (1960)
Lecturer in Mathematics
B.S., University of Alberta, 1920; M.A., University of California, 1922.

RICHARD A. GARIBALDI (1958)
Assistant Athletic Director
Assistant Varsity and Freshman Coach
B.S., University of Santa Clara, 1958.

JOSEPH W. GASSER, M/SGT. (1959)
Instructor in Military Science

WILLIAM R. GILLINGHAM, CAPT. (1959)
Assistant Professor of Military Science
B.S., Gonzaga University, 1951.

MARTIN C. GLAVINA (1930)
Associate Professor of German and Italian (Emeritus)
A.B., University of California, 1926; A.M., 1928.

HASKELL M. GOODMAN (1959)
Lecturer in Law
B.S., Harvard College, 1944; LL.B., Harvard Law School, 1948.

CLAUSIN D. HADLEY (1950)
Professor of Business Administration
B.S., University of Oregon, 1928; M.B.A., Stanford University, 1930; Ph.D., University of Wisconsin, 1937.

**WILLIAM M. HAGAN, S.J. (1960)
Assistant Professor of Dogmatic Theology
A.B., Gonzaga University, 1949; M.A., Gonzaga University, 1950; S.T.L., West Baden College, 1957; S.T.D., Woodstock College, 1960.

HENRY V. HAHNE (1959)
Associate Professor of Engineering
Degree in Engineering, Technische Hochschule Graz. Austria, 1949; Ph.D., Stanford University, 1954.

ROBERT K. HALING (1961)
Lecturer in Engineering
B.S., Yale University, 1945; M.S., Yale University, 1948; Ph.D., Brown University, 1956.

CLARENCE L. HAM (1955)
Assistant Professor of Business Administration and Economics
B.S., University of Wisconsin, 1947.

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JAMES J. HANNAH (1957)
Associate Professor of History
B.A., St. Paul's College (Washington, D.C.), 1947; M.A., University of Nebraska, 1951; Ph.D., University of California at Berkeley, 1956.

**JAMES D. HARAN (1958)
Lecturer in Speech
A.B., San Francisco State College, 1947; M.A., Stanford University, 1951.

HARRY P. HARTKEMEIER (1960)
Visiting Professor of Business Administration
B.S., University of Louisville, 1927; M.A., Harvard University, 1928; Ph.D., University of Chicago, 1930.

ROBERT E. HAYES (1934)
Professor of Law (On leave)
A.B., Holy Cross College, 1926; LL.B., Boston College, 1933.

ROBERT W. HAYES (1957)
Instructor in Speech
B.A., Duquesne University, 1950; M.A., University of Hawaii, 1957.

CARL H. HAYN, S.J. (1955)
Assistant Professor of Physics
A.B., Gonzaga University, 1939; A.M., Gonzaga University, 1940; S.T.L., Alma College, 1948; Ph.D., St. Louis University, 1955.

BERNARD HERZOG (1961)
Lecturer in Engineering
A.B., Harvard University, 1950; Ph.D., Columbia University, 1958.

ABRAHAM P. HILLMAN (1957)
Associate Professor of Mathematics
B.A., Brooklyn College, 1939; M.A., Brooklyn College, 1940; Ph.D., Princeton University, 1950.

LEO A. HUARD (1959)
Professor of Law
Dean of the College of Law
B.A., St. Anselm College, 1939; LL.B., Georgetown University, 1946.

**JOHN E. HUESMAN, S.J. (1957)
Associate Professor of Sacred Scripture
A.B., 1942, M.A., 1943, Gonzaga University; S.T.L., Alma College, 1950; Ph.D., The Johns Hopkins University, 1955; S.S.L., The Pontifical Biblical Institute, Rome, 1956.

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**WILLIAM A. HUESMAN, S.J. (1938)
Professor of Dogmatic Theology — Dean School of Sacred Theology.
A.B., 1926, M.A., 1927 Gonzaga University; S.T.L., Alma College, 1935; S.T.D., The Pontifical Gregorian University, Rome, 1948.

J. HUGH JACKSON (1960)
Professor of Business Administration
A.B., Simpson College, 1912; M.B.A., Harvard University, 1920; LL.D., Simpson College, 1930; D.B.A., (Hon.) Simpson College, 1955; C.P.A., Wisconsin, 1919; Massachusetts, 1920; California, 1927.

HENRY A. JACOPI (1954)
Lecturer in Business Administration

WILLIAM R. JAMES (1956)
Assistant Professor of Dramatics and Speech
B.A., University of Nevada, 1953; M.A., San Jose State College, 1956.

DONLAN F. JONES (1956)
Assistant Professor of Engineering
B.E.E., University of Santa Clara, 1952; M.S., University of California at Los Angeles, 1954; Registered Engineer, State of California, 1959.

ELIOT JONES (1952)
Professor of Business Administration
A.B., Vanderbilt, 1906; M.A., Harvard University, 1908; Ph.D., Harvard University, 1913.

EDWARD M. KEATING (1960)
Lecturer in English
A.B., Stanford University, 1948; LL.B., Stanford University, 1950.

*RAYMOND J. KELLEY, S.J. (1958)
Assistant Professor of Latin
A.B., 1944, M.A., 1945, Gonzaga University; Th.B., Alma College, 1951.

JOSEPH P. KELLY (1939)
Assistant Professor of Business Law
Ph.B., Holy Cross College, 1933; J.D., New York University, 1936; LL.M., New York University, 1939.

THOMAS R. KOEHLER (1960)
Lecturer in Physics
B.S., Seattle University, 1954; Ph.D., California Technical, 1960.

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** Indicates instructing at Alma College.

FRANCIS J. KOENIG, S.J. (1957)
Assistant Professor of Chemistry
A.B., Gonzaga University, 1942; A.M., (Philosophy), Gonzaga University, 1943; M.S. (Chemistry), St. Louis University, 1955; Ph.D., (Chemistry), St. Louis University, 1957.

STANISLAW KOWNACKI (1958)
Associate Professor of Engineering
Dipl. Ing. (Electrical Engr.) Warsaw Polytechnic Institute, 1936.

WITOLD KRASSOWSKI (1957)
Assistant Professor of Sociology, Chairman of Department
B.Sc., Purdue University, 1952; M.S., Purdue University, 1954; Ph.D., Candidate, University of California at Los Angeles.

BERNARD L. KRONICK (1956)
Associate Professor of Political Science
Chairman, Department of Political Science
A.B., University of California, 1937; Ph.D., University of California, 1953.

*WALTER J. KROPP, S.J. (1956)
Associate Professor of Latin, Greek
Associate Dean, College of Arts and Sciences (Novitiate)
A.B., 1930, M.A., 1931, Gonzaga University.

HARRY B. KUYUMJIAN (1960)
Instructor in Civil Engineering
A.M.T.E.T. British Institute (London), 1955; B.Sc., 1959, M.Sc., 1960, Stanford University.

GEORGE G. LAYMAN, CAPT. (1958)
Assistant Professor of Military Science
B.S., Oklahoma State University, 1952.

**THOMAS W. LEAHY, S.J. (1959)
Assistant Professor of Sacred Scripture
A.B., St. Louis University, 1948; M.A., St. Louis University, 1949; S.T.L., Alma College, 1952; Ph.D., The Johns Hopkins University, 1957; S.S.L., The Pontifical Biblical Institute, Rome, 1958.

TUCK HOP LEE (1961)
Lecturer in Engineering
B.S.EE., University of Iowa, 1949; M.E.T., University of Iowa, 1950; Ph.D., University of Illinois, 1958.

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* Indicates instructing at Sacred Heart Novitiate.
** Indicates instructing at Alma College.

BRADFORD C. LIGHTY (1960)
Lecturer in Business Administration
B.S., Lewis and Clark College, 1953.

LAWRENCE C. LOCKLEY (1960)
Professor of Business Administration
B.A., University of California, 1920; M.A., University of California, 1921; M.A., Harvard University, 1928; Ph.D., Harvard University, 1931.

JEROME B. LONG (1961)
Instructor in Philosophy
B.A., Fordham University, 1950; M.A., Fordham University, 1953.

CARLOS U. LOPEZ (1959)
Lecturer in Spanish
B.S., University of Santa Clara, 1958; M.A., University of California, 1959.

PIET MACARE (1959)
Instructor in French
B.A., 1951, M.A., 1952, University of South Dakota.

ROBERT T. MACK, JR. (1961)
Lecturer in Business Administration
A.B., Harvard University, 1942; M.B.A., Harvard Graduate School of Business, 1943; Ph.D., University of Chicago, 1951.

THEODORE J. MACKIN, S.J. (1958)
Assistant Professor of Theology
Chairman, Department of Theology
B.A., 1946, M.A., 1948, Gonzaga University; S.T.L., Alma College, 1954; S.T.D., Pontifical Gregorian University, Rome, 1958.

GEORGE P. MALLEY (1959)
Director of Student Activities
B.S., University of Santa Clara, 1953.

**JAMES A. MARA, S.J. (1951)
Assistant Professor of Fundamental Theology
A.B., 1939, M.A., 1940, Gonzaga University; S.T.L., Western College, Massachusetts, 1947.

NORMAN F. MARTIN, S.J. (1958)
Assistant Professor of History
A.B., 1941, M.A., 1942, Gonzaga University; S.T.L., Colegio Maximo de San Miguel, Buenos Aires, 1948; M.A. (History), Mexico City College, 1950; Doctor en Letras (History), National University of Mexico, 1957.

( ) Denotes beginning of present service.
** Indicates instructing at Alma College.

JOHN J. MAYKOVICH (1958)
Lecturer in Mathematics
B.S., St. Procopius College, 1952.

PHILIP T. MCCORMICK (1958)
Associate Professor of Physics
B.S., University of Notre Dame, 1948; Ph.D., University of Notre Dame, 1954.

VINCENT T. MCGINTY, S.J. (1958)
Instructor in Theology
M.A., Gonzaga University, 1945; S.T.L., St. Louis University, 1952.

**FENTON J. MCKENNA (1947)
Lecturer in Speech
Ph.B., University of Santa Clara, 1928; LL.B., University of Santa Clara, 1930; J.D., University of Santa Clara, 1933.

HENRY A. MCKENNA (1960)
Instructor in Mechanical Engineering
B.M.E., University of Santa Clara, 1955.

CHARLES A. MCQUILLAN, S.J. (1956)
Assistant Professor of Philosophy
B.A., Gonzaga University, 1926; M.A., Gonzaga University, 1927.

**EDWARD D. MCSHANE, S.J. (1950)
Associate Professor of Church History
A.B., Gonzaga University, 1938; M.A., Gonzaga University, 1939; S.T.L., Alma College, 1946; H.Eccl.D., The Pontifical Gregorian University, Rome, 1950.

ROBERT G. MEINERS (1957)
Assistant Professor of Law (On leave)
A.B., Muhlenberg College (Pennsylvania), 1950; LL.B., Dickinson School of Law, 1956; LL.M., Harvard Law School, 1957.

JOSEPH F. X. MONASTA (1948)
Assistant Professor of Business Administration
A.B., St. Anselm College, 1936; M.B.A., Stanford University, 1948.

JAMES R. MORGALI (1961)
Lecturer in Engineering
B.A., Willamette University, 1955; B.S., Stanford University, 1955; M.S., Stanford University, 1956.

ROBERT I. MURRAY (1951)
Assistant Professor of Engineering
B.S., Stanford University, 1949; M.S., Stanford University, 1951.

( ) Denotes beginning of present service.
** Indicates instructing at Alma College.

CHARLES O. NEAL, CAPT. (1959)
Assistant Professor of Military Science
B.S., United States Military Academy, 1953.

HENRY P. NETTESHEIM (1947)
Associate Professor of Engineering (On leave)
Chairman, Department of Electrical Engineering
B.S. in E.E., University of Wisconsin, 1946; M.S., Stanford University, 1951; Registered Engineer, State of California.

HAROLD L. NEWMAN (1961)
Lecturer in Engineering
B.S., Georgia School of Technology, 1932; M.S., University of Buffalo, 1952.

JOHN P. O'CONNELL, S.J. (1959)
Counsellor

**JOSEPH D. O'BRIEN, S.J. (1938)
Professor of Canon Law
A.B., Gonzaga University, 1922; M.A., Gonzaga University, 1923; S.T.D., The Pontifical Gregorian University, Rome, 1940; J.C.D., The Pontifical Gregorian University, Rome, 1943.

**TERRENCE R. O'CONNOR, S.J. (1950)
Associate Professor of Patrology
A.B., Gonzaga University, 1939; M.A., Gonzaga University, 1940; S.T.L., St. Joseph's College, Ireland, 1953; S.T.D., The Pontifical Gregorian University, Rome, 1958.

**DANIEL J. O'HANLON, S.J. (1958)
Assistant Professor of Fundamental Theology
A.B., Gonzaga University, 1945; M.A., Gonzaga University, 1946; S.T.L., St. Joseph's College, Ireland, 1953; S.T.D., The Pontifical Gregorian University, Rome, 1958.

*HARRY T. OLIVIER, S.J. (1960)
Instructor in Speech
A.B., Gonzaga University, 1950; M.A., Gonzaga University, 1951; S.T.L., Alma College, 1958; M.A., Alma College, 1958.

BARTHOLOMEW L. O'NEILL, S.J. (1958)
Professor of Theology
A.B., Gonzaga University, 1925; A.M. Gonzaga University, 1926; S.T.L., St. Mary's College (Kansas), 1933.

( ) Denotes beginning of present service.
* Indicates instructing at Sacred Heart Novitiate.
** Indicates instructing at Alma College.

*John J. O'Neill, S.J. (1959)
Instructor in Latin
A.B., Gonzaga University; M.A., Stanford University, 1956.

Dwayne Orton (1961)
Professorial Lecturer
A.B., University of Redlands, 1926; M.A., College of Pacific, 1933; LL.D., University of Redlands, 1944.

Daniel A. O'Sullivan, S.J. (1958)
Instructor in Philosophy
A.B., Gonzaga University, 1948; M.A. Gonzaga University, 1949.

*Felton G. O'Toole, S.J. (1953)
Instructor in English
M.A. (Philosophy), Gonzaga University, 1941; M.A. (English), Fordham University, 1951.

Edwin J. Owens (1934)
Lecturer in Law
A.B., Holy Cross College, 1919; LL.B., Harvard University, 1922; LL.D., University of Santa Clara, 1952.

John Pagani (1954)
Professor of Business Administration, Chairman, Economics
Associate Dean of the College of Business Administration
B.S.C., University of Santa Clara, 1932; Ph.D., Stanford University, 1951.

D. Robert Papera (1960)
Assistant Professor of Business Administration
B.A., Stanford University, 1949; M.A., Stanford University, 1951; Ph.D., Stanford University, 1958.

Robert J. Parden (1954)
Professor of Engineering
Dean of the College of Engineering
B.S., 1947, M.S., 1951, Ph.D., 1953, University of Iowa,

Karl S. Pearman (1959)
Lecturer in Business Administration
B.A., St. John's University, Shanghai, 1932.

Richard K. Pefley (1951)
Associate Professor of Engineering
Chairman, Department of Mechanical Engineering
B.A. in M.E., Stanford University, 1944; M.S. in M.E., Stanford University, 1951.

( ) Denotes beginning of present service.
* Indicates instructing at Sacred Heart Novitiate.

JACK A. PETERSON (1955) ,
Assistant Professor of Engineering
B.S., in E.E., University of Idaho, 1949; M.S. in E.E., University of Idaho, 1953.

FRANK PETTIPHER (1960)
Lecturer in Business Administration
B.Sc., 1925; D.Sc., 1927, Birmingham University (England).

ROBERT J. PFEIFFER (1958)
Assistant Professor of Chemistry
B.S., University of Santa Clara, 1953; Ph.D., Cornell University, 1958.

ARTHUR T. PHELPS (1958)
Assistant Professor of Education
Director, Teacher Education Program
B.A., Canisius College, 1937; M.A., Canisius College, 1940; Ed.D., Columbia University, 1956.

JOSEPH J. POCIASK, S.J. (1945)
Associate Professor of English
M.A., Gonzaga University, 1937; S.T.L., Alma College, 1943.

DONALD F. POLDEN, MAJOR (1959)
Assistant Professor of Military Science
B.S., University of Georgia, 1957.

JOHN J. QUINN (1957)
Assistant Professor of English
Acting Chairman, Department of English
B.S., University of San Francisco, 1950; Ph.D., Stanford University, 1956.

KARL A. RAVEN (1953)
Assistant Professor of Biology
B.A., University of Colorado, 1941; M.A., University of Colorado, 1948.

HERMAN R. ROESTI (1953)
Lecturer in Business Administration
A.B., University of Santa Clara, 1942.

JOSEPH A. RUSSO (1960)
Assistant Professor of Italian
A.B., 1934, M.A., 1937, Miami University.

ARTHUR F. RUTLEDGE, S.J. (1956)
Assistant Professor of Philosophy and Theology
B.A., 1944, M.A., 1945, Gonzaga University; S.T.B., Alma College, 1952; M.A. in Ed., Loyola University, Los Angeles, 1960.

( ) Denotes beginning of present service.

MICHAEL A. SAAD (1959)
Associate Professor of Engineering
B.S., Alexandria University, 1949; M.S., Massachusetts Institute of Technology, 1952; Ph.D., University of Michigan, 1955.

BENJAMIN F. SARGENT, S.J. (1960)
Assistant Professor of Philosophy
and Athletic Coach
B.A., 1943, M.A., 1945, Gonzaga University; S.T.B., Alma College, 1952.

WILLIAM D. SAUERS (1956)
Lecturer in Law
A.B., Fresno State College, 1949; LL.B., Stanford University, 1952.

WILLIAM R. SEARS (1960)
Lecturer in Business Administration
B.A., Yale University, 1946; M.A., Stanford University, 1951.

RICHARD M. SCHMIDT (1941)
Assistant Professor of English
A.B., University of Santa Clara, 1935; M.A., University of Washington, 1945.

ROBERT F. SHEA (1956)
Assistant Professor of Dramatics and Speech, Chairman of Department
B.A., Trinity College, 1938; M.A., University of South Dakota, 1953.

WILLIAM F. SHEEHAN, JR. (1955)
Assistant Professor of Chemistry
B.S., Loyola University of Chicago, 1948; Ph.D., California Institute of Technology, 1952.

**FRANCIS L. SHEERIN, S.J. (1934)
Professor of Dogmatic Theology
A.B., 1917, M.A., 1918, Gonzaga University; S.T.D., The Pontifical Gregorian University, Rome, 1925; Mag.Aggreg., The Pontifical Gregorian University, Rome, 1927.

PAUL R. SPINDLER (1960)
Lecturer in Journalism
B.S., Temple University, 1952.

RICHARD J. STANEK (1958)
Assistant Professor of Psychology, Chairman of Department
B.S., 1950, A.M., 1953, Ph.D., 1956, Loyola University, Chicago.

( ) Denotes beginning of present service.
** Indicates instructing at Alma College.

GERHARDT E. STEINKE (1956)
Associate Professor of Languages
Acting Chairman, Department of Foreign Languages
B.A., University of Chicago, 1939; M.A., Tulane University, 1942; Ph.D., Stanford University, 1954.

GEORGE A. STRONG (1955)
Associate Professor of Law
Assistant Dean, College of Law
B.S., University of Notre Dame, 1944; M.A., University of California, 1952; LL.B., University of Santa Clara, 1955.

GEORGE L. SULLIVAN (1912)
Professor of Engineering
Dean Emeritus
B.S. in M.E., University of Nebraska, 1908; M.E., University of Colorado, 1910; Ph.D., University of Santa Clara, 1914.

DAVID SUMMERS (1960)
Lecturer in Journalism
B.S., Temple University, 1950.

IRVING SUSSMAN (1956)
Professor of Mathematics
Chairman, Department of Mathematics
B.S., Columbia University, 1943; M.A., The Johns Hopkins University, 1947; Ph.D., University of California, 1953.

PETER A. SZEGO (1956)
Assistant Professor of Engineering
B.S., Stanford University, 1947

ALEXANDER A. TAIT, S.J. (1956)
Associate Professor of Theology
M.A., Gonzaga University, 1940.

HAROLD M. TAPAY (1950)
Associate Professor of Engineering
B.A.Sc. in M.E., University of British Columbia, 1946; M.S., University of Washington, 1949.

JOSEPH M. TRICKETT (1958)
Professor of Management
Ph.B., Washburn University, 1936; M.B.A., Stanford University, 1938; Ph.D., Stanford University, 1953.

JAMES F. TWOHY (1959)
Lecturer in Political Science
A.B., University of Santa Clara, 1907.

( ) Denotes beginning of present service.

CLEMENS VAN PERRE (1932)
Associate Professor of French (Emeritus)
B.A., Royal Lyceum (Antwerp), 1908; Graduate Athenaeum of Antwerp Belgium, 1911; Graduate, Royal Conservatory, Antwerp, 1913; Graduate, University of Louvain, 1913-14.

VICTOR B. VARI (1946)
Assistant Professor of Spanish and Italian (On Sabbatical leave)
A.B., San Francisco State College, 1942; M.A., Stanford University, 1952.

ROBERT A. VATUONE (1960)
Lecturer in Law
B.S., 1951, LL.B., 1953, University of Santa Clara.

**JOSEPH B. WALL, S.J. (1951)
Associate Professor of Dogmatic Theology
A.B., 1939, M.A., 1940, Gonzaga University; S.T.L., Alma College, 1947; S.T.D., The Pontifical Gregorian University, Rome, 1959.

AUSTEN D. WARBURTON (1946)
Lecturer in Law
A.B., San Jose State College, 1938; LL.B., University of Santa Clara, 1941.

WILLIAM P. WHELIHAN, COLONEL (1957)
Professor of Military Science
B.S., United States Military Academy, 1933.

ALVIN M. WHITE (1954)
Assistant Professor of Mathematics
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FREDERICK D. WILHELMSEN (1959)
Associate Professor of Philosophy (On leave)
A.B., University of San Francisco, 1946; M.A., Notre Dame University, 1948; Ph.et Litt.D., University of Madrid (Spain), 1958.

WILLIAM W. WINANS (1950)
Lecturer in Business Administration
B.S., University of California, 1941.

**JOHN H. WRIGHT, S.J. (1959)
Associate Professor of Dogmatic Theology
A.B., Gonzaga University, 1945; M.A., Gonzaga University, 1946; S.T.L., Alma College, 1953; S.T.D., The Pontifical Gregorian University, 1957.

( ) Denotes beginning of present service.
** Indicates instructing at Alma College.

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RESEARCH

Robert J. Parden, chairman; John B. Drahmann, Clausin D. Hadley, Richard K. Pefley, Irving Sussman, and Joseph S. Brusher, S.J.

STUDENT ENROLLMENT

Alexis I. Mei, S.J., chairman; Charles J. Dirksen, Leo A. Huard, Robert J. Parden, David P. Arata, Edwin A. Beilharz, Richard W. Jonsen, and an Alumni Representative.

STUDENT SERVICES

James E. Sweeters, S.J., chairman; Louis I. Bannan, S.J., John B. Drahmann, Henry P. Nettesheim, Louis F. Boitano, George P. Malley, ASUSC President, ASUSC Vice-President, "Santa Clara" editor, and one day student.

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Edward A. Amaral, M.D. ..... Director of Student Health
Vivian Tveitnes, R.N. ..... Head Nurse
Elizabeth Krauss, R.N. ..... Assistant Nurse

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Josef Hilpert, Kt. C., P.P.C. ..... Associate Director
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Bernard R. Hubbard, S.J., D.Sc. ..... Director

OFFICE OF UNIVERSITY PUBLIC RELATIONS AND DEVELOPMENT

Walter E. Schmidt, S.J. ..... Vice-President for Public Relations
Lee O. Case, A.B. ..... Development Director

Mission Santa Clara

GENERAL INFORMATION

LOCATION

The University of Santa Clara, one of twenty-eight institutions conducted by the Fathers of the Society of Jesus, is situated at Santa Clara, on the site of the Mission of the same name, fifty miles south of San Francisco. The City of Santa Clara is contiguous with San Jose which, according to a recent study of the Department of Commerce, is destined to be the largest city in Northern California.

HISTORY

Mission Santa Clara. On January 12, 1777, two Franciscan Padres, de la Pena and Murguia, planted the Mission Cross and laid the foundations of Mission Santa Clara on the banks of the Guadalupe, a mile and a half from the present University grounds. Two years later a flood destroyed both church and monastery, and the Padres removed the Mission to the second site, two blocks from the present church. There, on November 9, 1781, they laid the foundations of a large adobe church and mission buildings. Three years later, on May 15, 1784, the new church was dedicated by the Venerable Padre Serra, then Padre Presidente of the Missions of California.

Owing to damage by earthquakes in 1812 and 1818, the Padres were forced to build anew and this time selected the site of the present Mission. There, on August 11, 1822, a still larger church was dedicated. With the passing of time the church was largely rebuilt, though the chancel and the interior arrangements remained substantially as originally constructed. The Mission was destroyed by fire in 1926 but was rebuilt in 1927 along the lines of the original structure. The new Mission was dedicated in 1928. The restoration was made possible by the generosity of friends in the Santa Clara Valley as well as friends and alumni of the University throughout the state of California.

In 1836 Mission Santa Clara was secularized and passed from the hands of the devoted Padres into those of politicians, who robbed the Mission of her lands and oppressed or drove away her children. When Rt. Rev. Joseph Sadoc Alemany, O.P., arrived as Bishop of the Diocese of San Francisco in 1850, he found only one Franciscan in charge of the Mission, which had been restored by the American government, though in a sadly reduced form.

Santa Clara College. Desiring to save the remnants of the Mission, and also to start a college to meet the growing need of the times, the Bishop invited the Society of Jesus to Santa Clara. The invitation was accepted and on March 19, 1851, Father John Nobili laid the

foundation of Santa Clara College. In 1857 the degree of Bachelor of Arts was conferred on Thomas I. Bergin, the first to receive that degree from any California college.

During subsequent years the College grew in influence and attendance. Several large new buildings were added and for many years Santa Clara College, in both equipment and scholastic standing, ranked as a leading educational institution in the West. On April 28, 1885, the institution was chartered as a University but continued to be known as Santa Clara College until 1912. It is the oldest institution of higher learning in the West.

THE UNIVERSITY. In 1907 lectures were initiated to prepare students to enter professional courses in law, medicine, and engineering. In 1911 the pre-medical curriculum was established and the law school begun. In 1912 the President and Board of Trustees adopted officially the name "University of Santa Clara."

In 1913 a thoroughly equipped laboratory for engineering was prepared. The outbreak of war in 1914 suspended plans for expansion and it was not until after its close that they were resumed. In 1923 an extensive building program was begun in order to provide an adequate material basis for the University.

Accompanying the building program there has come a corresponding growth in attendance and scholastic work. In 1923 the pre-medical program was restored and a four-year College of Business Administration added. In 1925 the College of Law was increased to four years and the Preparatory Department transferred to a separate campus at College Park, San Jose. In 1926 the University celebrated its Diamond Jubilee and with enlarged facilities and equipment entered upon a program of greater service to the Church and the state.

In 1939 the College of Law was fully accredited by the American Bar Association and the Association of American Law Schools. Developing a program of community service, the College of Business Administration in 1947 offered evening classes to make the services of the business faculty available to people of the area.

During the academic year of 1950-1951 the University celebrated its one-hundredth year of service to the community. It was fittingly commemorated by functions of a religious, academic, civic, and social nature.

In 1956 plans were formulated for a modified nursing program designed to give a year of academic work to first year students of O'Connor Hospital.

The University, renewing and strengthening earlier ties, granted, effective for the academic year 1957-58 and thereafter, the status of affiliation to Alma College, Los Gatos, California, as the University's School of Sacred Theology.

BUILDINGS AND GROUNDS

The University has three campuses. One, of approximately sixty-seven acres, is situated on the El Camino Real in the City of Santa Clara on the site of the third Mission Santa Clara. On one half of this campus the University buildings, grouped in a series of quadrangles around the Mission Church, provide a continuation of the original Mission. On the other half of this campus are located the George L. Sullivan Engineering Center and Ryan Field, used by the R.O.T.C. and the Office of Athletics. A second campus, where special studies are pursued, comprising five acres, is located just outside the Town of Los Gatos. The third campus, Alma College, is also located outside the Town of Los Gatos and is the site of the University's School of Sacred Theology.

SCHOLARSHIPS

The University has a number of scholarships available for students who have demonstrated in their high school careers the qualities which the University attempts to develop through its undergraduate programs.

QUALIFICATIONS

Besides the conditions laid down by the donors, all scholarships administered by the University are subject to the following conditions:

First: In selecting students for scholarship benefits, the Committee requires evidence of financial need. From the applications which satisfy the above requirement, preference will be given to students with higher scholastic attainments.

Second: Students who are recipients of scholarships must maintain an average of at least 2.50 (C+) and be approved by the Committee on Academic Standing.

Third: In selecting students for scholarships, participation in extra-curricular activities will be taken into account. Continuance in extra-curricular activities will be required of all holders of scholarships.

Fourth: A student who holds a scholarship must renew his petition for a scholarship each year. Petitions for new or renewed scholarships by students already in attendance at the University must be submitted during the month of May to the Director of the Office of Financial Aids.

Fifth: Scholarships may be cancelled at any time by the Administration for any infraction of the rules and regulations of the University.

FRESHMEN: Scholarship assistance is awarded to incoming freshmen on the basis of demonstrated leadership and character, superior academic record, and financial need. The financial need is determined by means of the confidential statement made by parents to the College Scholarship Service. Forms for the *Parents' Confidential Statement* may be secured from any local high school.

In addition to the *Parents' Confidential Statement,* it is required that the following documents be filed with the University before March 1 of the current academic year:

1. An Application for Admission with the $5.00 application fee.
2. Transcript of high school grades for not less than seven semesters.
3. Letters of recommendation as to character and achievement from (a) the local high school principal; (b) the senior counselor.
4. Scores of the Scholastic Aptitude Test administered by the College Entrance Examination Board in December, January, or February.

Announcement of scholarship grants will generally not be made to freshmen recipients before May 1.

DESCRIPTION OF SCHOLARSHIPS

ALUMNI SCHOLARSHIP: A perpetual scholarship provided by "The Alumni Scholarship Fund" ($1,620) established in 1945 by the University of Santa Clara Alumni Association for the benefit of a deserving student.

JESSE W. BRYAN SCHOLARSHIP: A perpetual scholarship provided by a gift ($12,500) in 1913 from Mrs. Sarah A. Bryan of San Francisco in memory of her son, Mr. Jesse W. Bryan (S.C. 1891-92), for the benefit of a boarding student.

MAGIN CATALA SCHOLARSHIP FUND: A perpetual scholarship ($200) contributed and partially founded in 1954 by the Catala Club of the University of Santa Clara for the benefit of a deserving and needy student majoring in Liberal Arts, to be designated by the President of the University.

JAMES W. COFFROTH SCHOLARSHIPS: Perpetual scholarships provided from the Trust Fund ($18,800) established in 1943 at the Wells Fargo Bank, San Francisco, by the bequest of James W. Coffroth of San Diego, for the benefit of needy undergraduate students.

F. W. CONLOGUE SCHOLARSHIPS: Annual Scholarships (totaling $1,000) contributed in 1949 and subsequently by F. W. Conologue

of Boulder Creek for needy and deserving Catholic students of America.

ROBERT L. COWARD SCHOLARSHIPS: Annual scholarships contributed in 1918 and subsequently by friends of the University in memory of Mr. Robert L. Coward (S.C. 1896-99), for the benefit of needy and deserving students who are outstanding for contributions to the extra-curricular activities of the University.

KATHERINE CONNOR SCHOLARSHIPS: A perpetual scholarship provided by bequest ($4,500) in 1942 from Miss Katherine Connor of San Jose, for the benefit of students designated by the President of the University.

CROWN ZELLERBACH FOUNDATION SCHOLARSHIP: An annual scholarship ($600) contributed in 1956 and subsequently by the Crown Zellerbach Foundation for a deserving student in the College of Business Administration; selection to be made by the Committee on Scholarships.

DE SAISSET-FILIPELLO SCHOLARSHIP: A perpetual scholarship provided by a gift ($1,500) in 1944 from Miss Isabel de Saisset and Mrs. E. A. Filipello of San Jose, for the benefit of a student desig-

FARMERS INSURANCE GROUP SCHOLARSHIPS: Annual scholarships (totaling $570) contributed in 1958 and subsequently by The Farmers Insurance Group, for the benefit of deserving students in the College of Law.

MAMIE H. EVANS SCHOLARSHIPS: Perpetual scholarships provided by "The Mamie H. Evans Memorial Scholarship Fund" ($9,753) established in 1938 by a bequest from Mrs. Mamie H. Evans of Butte City, for the benefit of needy and deserving students.

WILLIAM C. GIANERA SCHOLARSHIPS: Perpetual scholarships and grants-in-aid provided by the Fund ($11,259) inaugurated in 1951, by friends of the University in honor of William C. Gianera, S.J., former President of the University (1945-51), for the benefit of needy and deserving students.

ROBERT AND GUILLERMINA GRAHAM SCHOLARSHIPS: Perpetual scholarships provided by a Fund ($22,387) inaugurated in 1950 by Mr. and Mrs. Robert M. Graham, (S.C. 1925-29 and former Bursar of the University), for the benefit of needy and deserving students of the Catholic Faith.

ROBERT L. JACOBS SCHOLARSHIP: A perpetual scholarship provided by a Fund ($1,025) established in 1945 by friends of Mr. and Mrs. Leon Jacobs of San Jose in honor of their son, Robert L. Jacobs (S.C. 1941-45) who gave his life in World War II, for the benefit of a student designated by the President of the University.

KNIGHTS OF COLUMBUS SCHOLARSHIP: An annual scholarship ($400) contributed in 1948 and subsequently by the California Knights of Columbus, for the benefit of a needy and deserving student.

GEORGE H. MAYR SCHOLARSHIPS: Annual tuition scholarships (totaling $4,000) contributed in 1953 and subsequently by the George H. Mayr Educational Foundation of Los Angeles, for the benefit of needy and deserving students from the State of California.

JENNIE L. MURPHY AND BESSIE W. MURPHY SCHOLARSHIP FUND:

JOHN PAUL PAGANINI SCHOLARSHIP: A perpetual scholarship provided by a gift ($10,000) in 1945 from Mr. Charles M. Paganini and Family of San Francisco in honor of his son, John Paul Paganini (S.C. 1934-38), who gave his life in World War II, for the benefit of a student designated by the President of the University.

BENJAMIN PATOCCHI SCHOLARSHIP: A perpetual scholarship provided by a bequest ($8,000) in 1949 from Mr. Benjamin J. Potacchi of Sonoma County, for the benefit of a student designated by the President of the University.

JAMES D. PHELAN SCHOLARSHIPS: Perpetual scholarships provided by a bequest ($50,000) in 1931 from the Hon. James D. Phelan, former mayor of San Francisco and United States Senator, for the benefit of students designated by the President of the University.

RADIO CORPORATION OF AMERICA SCHOLARSHIP: An annual scholarship ($800) contributed in 1950 and subsequently by the Radio Corporation of America, for the benefit of an undergraduate student of high academic rank in the College of Science or Engineering.

JOHN MCKENNA SCOTT SCHOLARSHIP FUND: A perpetual scholarship provided by a bequest $(9,737) in 1957 from Mr. John McKenna Scott of San Francisco, for the benefit of a Mechanical Engineering student selected by the Board of Trustees according to norms indicated by the donor.

CATHERINE SEXTON SCHOLARSHIP: A perpetual scholarship provided by a bequest ($18,000) in 1946 from Mr. John E. Sexton, Jr., of Palisade, Nevada, in memory of his mother, Mrs. Catherine Sexton, for the benefit of a boarding student from El Dorado County, California.

JOHN E. SEXTON, SR., SCHOLARSHIP: A perpetual scholarship provided by a bequest ($18,000) in 1946 from Mr. John E. Sexton, Jr., of Palisade, Nevada, in memory of his father, Mr. John E. Sexton, Sr., for the benefit of a boarding student from El Dorado County, California.

JOHN E. SEXTON, JR., SCHOLARSHIP: Perpetual scholarship provided by a bequest ($18,000) in 1946 from Mr. John E. Sexton, Jr., of Palisade, Nevada, for the benefit of a boarding student from Eureka County, Nevada.

EARL C. SMART SCHOLARSHIPS: Perpetual scholarships provided by a bequest ($7,500) in 1957 from Mr. Earl C. Smart of San Jose, for the benefit of students designated by the President of the University in accord with the wishes of the donor.

ALICE PHELAN SULLIVAN SCHOLARSHIPS: Perpetual scholarships provided by a gift ($6,500) in 1912 and a bequest ($10,000) in 1957 by Noel Sullivan in memory of his mother, Mrs. Alice Phelan Sullivan of San Francisco, for the benefit of students designated by the President of the University.

THE WALTER V. WALSH SCHOLARSHIP FUND: Perpetual scholarships provided by a bequest ($5,000) in 1957 from Mr. Walter V. Walsh of San Francisco for the benefit of needy and deserving students in the College of Law.

FRANK AND ALICE WALTERSTEIN SCHOLARSHIPS: Perpetual scholarships provided by a bequest ($35,916) in 1949 from Mrs. Alice Walterstein, for the benefit of students designated by the President of the University.

WESTERN ELECTRONIC MANUFACTURERS ASSOCIATION SCHOLARSHIP: An annual scholarship ($750) contributed in 1953 and subsequently by the Western Electronic Manufacturers Association,

for the benefit of a needy and deserving student majoring in Electrical Engineering in the College of Engineering, selected by the Committee on Scholarships.

WESTERN GEAR FOUNDATION ENGINEERING SCHOLARSHIP: An annual scholarship ($500) contributed in 1953 and subsequently by the Western Gear Foundation (of the Western Gear Works), in honor of Philip L. Bannan, for the benefit of a student in the College of Engineering.

JESUIT SCHOLARSHIPS

HANNA: An annual scholarship ($500) contributed in 1935 and subsequently by the Jesuit Fathers of the University in honor of His Excellency the Most Reverend Edward J. Hanna, former Archbishop of San Francisco, for the benefit of a needy and deserving student nominated by the incumbent Archbishop from the graduates of Catholic High Schools of the Archdiocese.

BELLARMINE: Eight annual scholarships ($500 each) contributed in 1953 and subsequently by the Jesuit Fathers of the University, for the benefit of needy and deserving students from Bellarmine College Preparatory, San Jose, nominated by the Faculty of that institution.

LOYOLA: An annual scholarship ($500) in the College of Engineering contributed in 1935 and subsequently by the Jesuit Fathers of the University, for the benefit of a needy and deserving student from Loyola High School, Los Angeles, nominated by the Faculty of that institution.

ST. IGNATIUS: An annual scholarship ($500) in the College of Engineering contributed in 1935 and subsequently by the Jesuit Fathers of the University, for the benefit of a needy and deserving student from St. Ignatius High School, San Francisco, nominated by the Faculty of that institution.

BROPHY: Four annual scholarships ($500 each) contributed in 1956 and subsequently by the Jesuit Fathers of the University, for the benefit of needy and deserving students from Brophy College Preparatory, Phoenix, Arizona, nominated by the Faculty of that institution.

SANTA CLARA: A limited number of annual scholarships (amounts according to need) contributed in 1930 and subsequently by the Jesuit Fathers of the University, for the benefit of needy and deserving students selected by the Committee on Scholarships.

EMERY: A limited number of scholarships (amounts according to need) in the College of Law, contributed in 1956 and subsequently by the Jesuit Fathers of the University in honor of James A. Emery (S.C. 1893-96), for the benefit of needy and deserving students selected by the Committee on Scholarships.

STUDENT EXPENSES

Application Charge	$ 5.00
This charge is to be sent with each application form and is not refundable.	
Tuition (per semester)	500.00
For graduate tuition and fees, see announcement of the Graduate Division. For summer session tuition and fees, see announcement of Summer Session.	

Other Charges

Late registration fee	$ 20.00
Remedial English Course—Subject "A"—each course	10.00
Late submission of administrative forms (e.g., pre-registration, application for degrees, etc.) per day	2.00
Charges for loss or damage in residence hall or to military equipment will be billed directly to the student and parents upon report of damage or loss.	
Breakage card for chemistry courses (unused amount returned to student at close of course)	5.00
Additional copies of the student's transcript of grades, each	1.00
Graduation	25.00
Fee for each change in scheduled course	2.00
Part-time student tuition, per unit	33.00
Redwood (annual)	7.00
Student insurance (per semester)	3.00
Room and board (per semester)	450.00
Room and board (Christmas holidays)	50.00
Room and board (Intersemester holidays)	25.00
Resident students must bring their own blankets and bedspreads.	
Laundry deposit (per semester)—optional	35.00
Infirmary room charge (per day)	10.00
Rooms in infirmary are restricted to resident students. Medicines, x-ray services, etc., will be charged at standard prices.	

METHOD OF PAYMENT

Students should come prepared to pay all charges on the day of registration, or should have payments from home in the mail to reach the University at least one week prior to the date of registration.

Remittances should be made payable to the "University of Santa Clara" and mailed to the Office of the Treasurer.

Students who have unpaid bills at the University or who defer payments without approval are subject to dismissal from the University and, as long as such payments remain unpaid, may not receive transcripts of credits nor any diploma.

For those who are not financially able to pay the full semester charges in advance, the University has made available the services of The Tuition Plan, Incorporated. Those who plan to avail themselves of this service should request the University to prepare a contract at least one month prior to registration. Please address inquiries to the Business Office of the University.

In addition, the University has several loan funds which are available to the students and their parents. These are:

National Defense Student Loan Fund. This fund is available to any student in good standing, including incoming freshmen. Application for a loan from this fund may be made through the Office of Financial Aids.

The Catala Club Loan Fund. This fund, established and administered by the Catala Club, is available for students in sophomore, junior, and senior years. The officers of the Catala Club may be contacted through the University Business Office.

College of Law Loan Fund. This fund is available to students in the College of Law. Application may be made through the Dean of the College of Law.

Refund of Tuition. Students who withdraw from the University may receive refunds of this charge according to the following scale of withdrawal:

—within one week after registration: payment refunded minus . . . . . $ 50.00

—within two weeks after registration: payment refunded minus 90.00

—within four weeks after registration: payment refunded minus 150.00

For withdrawal after four weeks of classes there will be no refund of this charge.

Refund of Room and Board. Refunds of this charge will be made according to the following scale of withdrawal:

—within the first six weeks: unused portion of payment (prorated as from the Monday following withdrawal) minus $100.00

—within the second six weeks: unused portion (prorated as above) minus 67.00

—within seventeen weeks: unused portion (prorated as above) minus 33.00

—after the seventeenth week: no refund will be made.

(Refunds cannot be processed until a month after the student's withdrawal.)

STUDENT SERVICES

STUDENTS' HEALTH SERVICES

A physician is in daily attendance. Medical services provided to all students include ordinary medical and prescriptive services and attendance of nurses and infirmary staff. Emergency and minor treatment (determined by the Infirmary Directive) are also given free of charge. Rooms in the infirmary are restricted to resident students.

In accordance with the recommendation of the State Board of Health, all students must present a certificate of vaccination or be vaccinated by one of the University physicians. A certificate of health from the home physician is required of each student at the time of registration.

The University assumes no responsibility for injuries sustained during play, in the swimming pool, in the gymnasium or during athletic contests.

GUIDANCE AND TESTING SERVICES

The Guidance Office, through such services as testing, counseling and providing occupational information, helps the student to secure data about his abilities, interests and personality and thereby assists him in his occupational choice and educational goals. The Guidance Office also offers to help the student to improve his study techniques and reading skill.

By providing a comprehensive psychological testing service, this office also assists academic and administrative staffs in their work of counseling students.

PLACEMENT OFFICE

The Placement Office, located in Nobili Hall, by a detailed and extensive schedule of interviews aids graduating seniors and alumni in securing full-time employment. It also attempts to find jobs on a part-time basis for students in need of financial assistance.

The office remains in operation during the entire year, including the summer vacation months, and its services are available to students and alumni without charge. Students on probation or on the academic deficiency list will not receive assistance from this office.

STUDENT EMPLOYMENT

Employment on campus is available at the University for a number of students who need the means to defray part of their school expenses. Compensation depends on the number of hours given to work, and the amount earned is applied to the student's account with the University. Preference for employment is given to students of high scholastic standing. All students so employed must carry their regular academic schedule with an over-all average of "C".

Available are jobs as student residence prefects, dining hall prefects, kitchen employees, library assistants, readers and other miscellaneous jobs. Student on-campus employment is arranged at the office of the Vice-President for Student Affairs.

RESIDENCE

The University maintains several residence halls for the convenience of those students whose homes are not within commuting distance. The general rule is that all students must reside on campus, except those who are married or reside with parents or near relatives in the immediate vicinity.

Because on-campus residence facilities may be insufficient to house all applicants, exceptions to this rule are possible. Students seeking exception must apply in writing to the Vice-President for Student Services on forms provided by the Student Services Office. Applications will be approved only on condition that the student agrees to move on campus at such time as facilities become available. Students so approved for off-campus residence will move on campus within thirty days after notice from the University that on-campus facilities have become available for and been assigned to him.

Off-campus residence is subject to the approval of the Vice President for Student Services. Any undergraduate who resides off-campus in a residence not approved by the Vice President for Student Services will be subject to dismissal from the University.

Students accepted for residence on campus at the beginning of the academic year (September) are expected to continue residence on campus through the conclusion of the academic year (June). The University will not approve requests for permission to move off campus during this time.

STUDENT ACTIVITIES

College life must include the development of the social side of every student's character. Marked initiative and leadership in organized religious and social movements for the common welfare are qualities expected of college men generally. For this purpose the University student organizations and activities furnish ample opportunity.

Except where otherwise specifically provided by the Faculty, students participating in public debates or oratorical or dramatic art contests, or representing any department of the University in intercollegiate athletic events, or appointed to the staff of any University publication, or elected or appointed to office in a student organization or society, or elected as captain of any team, are subject, at the time of their selection or appointment, to the following eligibility rules:

1. They must have no failures.
2. They must have attained a "C" average in their last mid-term or semester examinations.
3. They must not be under censure.

Candidates for the office of student body president must present a "C+" (2.50) average.

ASSOCIATED STUDENTS

The Associated Students of the University of Santa Clara (ASUSC) is the student body organized for the conduct of student government. All fee-paying registered students are members.

The purposes of the ASUSC are to further the best interests of the University and its students, to encourage student activities, and to provide valuable experience and training in self-government and responsibility.

RELIGIOUS SOCIETIES

As the first thought of the University is the encouragement of a sound religious life on the part of the student body, special attention is given to those sodalities and religious organizations sponsored by the Church, some of which have existed at Santa Clara for approximately a century.

NATIONAL SOCIETIES

Alpha Sigma Nu. This is a national honor society with chapters in various Jesuit colleges and universities throughout the United States. It is a society of honor students who have distinguished themselves in scholarship, service and loyalty to their college or university.

American Chemical Society Student Affiliates. This organization of students majoring in chemistry is affiliated with the parent national group of chemists, the American Chemical Society. Membership with the affiliates entitles members to junior level participation in the sectional society meetings.

Beta Gamma Sigma. The Delta Chapter of Beta Gamma Sigma at the University of Santa Clara is a professional business honor fraternity inaugurated to encourage and reward scholarship and accom-

plishment among students of commerce and business administration, to promote the advancement of education in the art and science of business and to foster integrity in the conduct of business operations. Members are selected on the basis of high scholarship and good moral character.

Delta Sigma Pi. Sigma Xi Chapter at the University of Santa Clara is a chapter of Delta Sigma Pi National Commerce Fraternity. It is a professional fraternity composed of students who are above average academically and who are leaders in the activities of the College of Business Administration.

National Federation of Catholic College Students. This is a nation-wide union of Catholic college students for the purpose of training its members to assume leadership in post-college life. The Federation strives to promote awareness of community responsibility, the need of Catholic lay leadership and the inherent unity of Catholic college people.

Pershing Rifles. The purpose of this national society is to encourage, develop and preserve the highest ideals of the military profession, to provide appropriate recognition of a high degree of military ability among cadets of the Reserve Officers' Training Corps and to instill in the membership the need for assuming civic responsibility. Active membership is open only to cadets of the Basic Course.

Scabbard and Blade. This is a national society composed of selected members of the Advanced ROTC. Its purposes are to unite in closer relationship the military departments of American universities and colleges, to develop the essential qualities of good and efficient officers, to prepare members to exert good influence in the military affairs of the communities in which they reside, and to spread intelligent information concerning the military requirements of our country.

Tau Beta Pi. This is a national engineering honor society. The California Zeta Chapter of the Tau Beta Pi was installed to give increased recognition to outstanding scholastic achievement. Its members are selected on the basis of scholarship, integrity and diligence.

DEPARTMENTAL ORGANIZATIONS

Each department of the University has its own organization for the study of technical problems and for the encouragement of social life among the student of the department.

The Engineering Society. This is an organization made up of students in the College of Engineering with the object of familiarizing them with the conduct of public meetings for the acquisition of ease in public speaking. Lectures to the engineering students are given before this body by guest speakers.

THE BUSINESS ADMINISTRATION ASSOCIATION. This is an organization of students in the College of Business Administration for the study of business problems and for the encouragement of social activities among the students of the College. Frequent lectures are given before the Association by business men of prominence.

THE STUDENT BAR ASSOCIATION. This organization is open to all students of the College of Law. It has been established according to the pattern set by the California State Bar Association. It offers easy liaison between students and faculty in the College of Law.

BLACKSTONE PRE-LEGAL SOCIETY. This society is composed of undergraduate students who aspire to attend law school and wish to acquaint themselves with the general duties of the legal profession before beginning their graduate work.

ST. THOMAS MORE SOCIETY. This society is open to all students of the College of Law and those students of the University who are interested in the philosophy of St. Thomas More. Its activities are primarily spiritual. Its members attend a quarterly Communion Breakfast on the campus and sponsor lectures by prominent Catholic lawyers and religious leaders.

DAY SCHOLARS ASSOCIATION. It promotes active participation of the non-resident students in all the campus activities. It has its own elected officers who work closely with the general student body officers in an effort to draw the non-resident student closer to the University.

KAPPA ZETA PHI. This is a campus fraternity devoted to service to the University. It is an honor fraternity composed of students who are above average academically and who are outstanding in campus activities and in their loyalty to the University and the student body.

CROSS CURRENTS CLUB. It is open to all students of the University. The members invite lecturers on controversial topics which are discussed by them after the formal presentation. This procedure is an experiment in learning by participating in current controversy.

THE STUDENT ARCHAEOLOGICAL COMMITTEE. This group of students assists in the discovery and removal of artifacts, bones, and other remains from ancient Indian burial sites. It helps to classify items discovered and to display these in the campus and regional museums.

THE INTERNATIONAL RELATIONS-POLITICAL SCIENCE CLUB. The purpose of this organization is the study of international problems of the past and future and of public affairs generally. It is affiliated with the Carnegie International Clubs.

MENDEL CLUB. This is an association of students preparing for the study of medicine, organized for the investigation of scientific subjects and the encouragement of such activities as are of particular interest to students of biology.

THE CLAY M. GREENE PLAYERS. This organization has exclusive charge of the formal dramatic presentations on the campus. Distinguished plays of the past were "The Passion Play of Santa Clara" by Clay M. Greene and "The Mission Play of Santa Clara" by Martin V. Merle. Modern theatrical productions are presented regularly.

DEBATING. Debating societies are maintained which arrange each year intercollegiate debates with representative colleges and universities. The traditional debating society on the campus is the Literary Congress which held its first meeting on February 22, 1857.

THE UNIVERSITY BAND furnishes members with the opportunity for ensemble playing at the public exercises of the University.

THE UNIVERSITY CHOIR AND GLEE CLUB furnish vocal music for services in the Mission Church and the public functions of the University.

THE ROTC BAND performs for military drill and ceremonies in which the remainder of the corps of ROTC cadets participates both on and off the campus.

ATHLETICS

Athletics at Santa Clara are directed by the Athletic Council and the Faculty Representative for Athletics, by whom arrangements for intercollegiate and intramural contests are made.

BLOCK S.C. SOCIETY. Members of the University teams who have secured the University letter are organized into the Block S.C. Society in recognition of their athletic ability and for the encouragement of a high standard of athletic conduct.

THE ATHLETIC MANAGERS ASSOCIATION is composed of volunteers from each class who cooperate with the management in the conduct of games and the care of equipment.

INTRAMURAL SPORTS. Facilities for the athletic activities of the student body are provided by the gymnasium with its basketball court, boxing and wrestling room, and swimming pool; by centrally located tennis and handball courts; and by the extensive athletic fields for football, baseball, track, softball and volleyball. A program of intramural athletics in which all students are encouraged to participate is conducted under the direction of the Director of Physical Education.

PUBLICATIONS

THE SANTA CLARA is the official weekly newspaper of the University. It publishes news of the University and affords students an opportunity for practice in newspaper editing, managing, and make-up.

THE REDWOOD is the University annual published by the students to serve as a record of University activities and of the students' achievements.

THE OWL is a quarterly literary magazine. It offers a medium of literary expression for the students.

THE SANTA CLARA LAWYER is a quarterly publication issued by the College of Law.

THE ALMA STUDIES — A THEOLOGICAL REVIEW is a semi-annual publication of the students of the School of Sacred Theology. Its primary purpose is to stimulate theological research and effective writing.

AWARDS

The following awards are open to competition on the dates announced. The Faculty Committee on Academic Standing reserves the right to withhold any of these prizes in the absence of sufficient competition of a meritorious grade of scholarship. No one is eligible to compete a second time for a prize which he has already won, except after an interval of one year. Students who have not been in attendance for both semesters may not compete.

GENERAL ACHIEVEMENT AWARDS

NOBILI MEDAL. An annual prize of a gold medal founded by Joseph A. Donohoe, Esq., in honor of the first president of Santa Clara, Rev. John Nobili, S.J., to be given to the student who shall be judged outstanding in personal conduct, school activities, and studies.

TWO SILVER MEDALS to be given to the following students who become most distinguished for good conduct and application to study.

1. The most distinguished RESIDENT student.
2. The most distinguished NON-RESIDENT student.

COLLEGE PRIZES

BUSINESS ADMINISTRATION PRIZE. An engraved key given by the Business Administration Association to the senior in the College of Business Administration who shall have made the greatest contribution to the College of Business Administration.

THE CHARGIN PRIZE. An annual prize of $50 to be given, in honor of Mr. and Mrs. Joseph A. Chargin, Sr., to the senior in the College of Law who has maintained the highest class average in his law course.

DELTA SIGMA PI KEY. An engraved key given by the Delta Sigma Pi to the senior in the College of Business Administration with the highest scholastic average.

THE ISABEL JONES PRIZE. An annual prize of one hundred ($100) dollars donated in honor of Mrs. Isabel Jones by her husband, Mr. Eliot Jones, to be given to the senior student of the College of

Business Administration who is judged by the Faculty of that College to be outstanding in scholarship.

THE ORELLA PRIZE. An annual award of $25.00 established in 1915 by the late Dr. Firmin R. Orella, B.S. '89, and founded in 1945 by his wife, Albertine S. Orella, to be given to the senior student in the departments of science who attains the highest average in scientific subjects during the junior and senior years.

THE SCHWARTZ PRIZES. Two annual prizes of one hundred ($100) dollars each, donated in 1955 by Mr. Sidney L. Schwartz of San Francisco to be given to students submitting papers in Finance and Business or Economics which shall be judged outstanding by the Faculty of the College of Business Administration.

DEPARTMENTAL PRIZES

THE RELIGION PRIZE. A purse of fifty ($50) dollars, given by the President of the University (1950), to be awarded annually to an upper division student, for proficiency in theology, selected on conditions set down by the Department of Theology.

SANTA BARBARA MEDALS. Four gold medals given by the President of the University will be awarded annually, on the recommendation of the Professor in Military Science, to the outstanding cadet in each of the four years of training.

THE SOURISSEAU PRIZE. An annual prize of seventy ($70) dollars, founded in 1955 by Miss Eva Sourisseau of San Jose in honor of her parents and family, to be given to the senior student of the University who shall be selected by the Department of Philosophy for outstanding philosophical achievement.

THE MICHAEL SHALLO PRIZE IN POLITICAL SCIENCE. An annual prize of fifty ($50) dollars founded in 1955 by the University in honor of Father Michael Shallo, S.J., Professor of Political Philosophy, to be given to the student of the University selected by competition as the most proficient in political science.

THE CIVIC CLUB ITALIAN PRIZES. Three prizes totaling fifty ($50) dollars, contributed in 1949 and thereafter by the Civic Club of San Jose, to encourage the study of Italian language and culture, to be given to the students attaining the three successively highest grades in the study of Italian.

THE MEDAL OF THE ASSOCIATION OF THE ARMY OF THE UNITED STATES. The Medal of the Association of the Army of the United States will be awarded to formally enrolled Advanced Curriculum members of the ROTC for meritorious accomplishments during a particular school year. Under this premise the Medal will be awarded to the out-

standing cadet of each class of the Advanced Curriculum of ROTC for exceptionally meritorious academic attainments, exemplary conduct, efficiency and fidelity.

Department of the Army Superior Cadet Ribbon Award. Four ribbons awarded annually by the Department of the Army to the outstanding cadet in each academic class of Senior Division ROTC program at the University who has consistently demonstrated potential qualities as an officer.

The Ryland Prizes. The Hon. Caius T. Ryland founded in 1897 an annual purse of $45.00, leaving its disposition to the discretion of the Faculty. This the Faculty, after due consideration, assigned to the University Literary Congress, organized February 22, 1857, establishing the Ryland Debate to be held yearly between the two branches, the Senate and the House, and divided the purse into three prizes of $20.00, $15.00 and $10.00, respectively. By an agreement between these societies, each in turn selects the subject to be debated, and the other is granted the choice of the side it will defend.

The William H. Leahy Prize. A gold watch, valued at $50.00. This prize was founded in honor of Mr. William Leahy by his wife and his brother, Mr. James Leahy, for the winner of the Dramatics Art Contest.

The Handlery Prize. An annual prize of $50.00 founded by Mrs. Rose Handlery in memory of her son, Raymond, of the class of 1934 to be given to the senior student of the University who will have contributed most to the success of any of the University student publications.

The McCann Prize. Annual prize of $25.00 founded in honor of Daniel B. McCann, B.S., '84, to be given for the best short story.

The Redwood Prize. Annual prize of $25.00 founded in 1908 by the executive committee of *The Redwoods,* and given for the best essay on an historical subject.

The Shipsey Poetry Prize. An annual prize of $50.00 founded in 1954 by Richard M. Schmidt in honor of the late Reverend Edward Shipsey, S.J., to be presented to the student selected by the Faculty of the Department of English for the most outstanding contribution in the art of poetry.

The Owl Prize. An annual prize of $25.00 founded by the directors of the former College Magazine *The Owl,* to be given to the winner of an oratorical contest in the University.

ADMISSION TO THE UNIVERSITY

Those who wish to apply for admission to the University should proceed as follows:

1. Secure an application form from the Office of the Registrar either by mail or by calling at the office. This should be done in the fall preceding the desired fall date of entrance.

2. Send the completed application to the Office of the Registrar in February preceding the desired fall date of entrance, together with the Application Service Fee of five dollars ($5.00). Applications filed after September 1 have no guarantee of being considered by the Committee on Admissions.

3. Request all high schools or colleges previously attended to send directly transcripts of completed preparatory work. These records should be prepared and sent to the Registrar during February or March.

4. Three testimonial letters certifying to the good moral character of the applicant should be sent also in February or March.

5. All freshmen applicants are required to take the Scholastic Aptitude Test of the College Entrance Examination Board. In addition, those majoring in the fields of chemistry, mathematics, physics or engineering are required to take the achievement test in advanced mathematics and any two of the following: physics, chemistry, English. Write for directions to the Educational Testing Service at Box 27896, Los Angeles 27, California or Box 592, Princeton, New Jersey. It is recommended that these tests be taken no later than March preceding the desired date of entrance.

No application for admission can be considered until the applicant has complied with all five points above.

Applicants for the College of Law, however, should be guided by the specific admission rules provided for that College.

ENTRANCE REQUIREMENTS

Candidates for admission to any of the undergraduate courses of the University must qualify:

(a) For admission to freshman standing by presenting evidence of graduation with better than average grades from the college preparatory curriculum of an approved high school.

(b) For admission to the undergraduate program of his choice by presenting high school courses in accordance with the pattern indicated in the requirements of the particular college. Refer to the College of Arts and Sciences, the College of Business Administration, and the College of Engineering for these requirements.

In addition to units prescribed by each college, several unprescribed units are required to complete the pattern. It is strongly recommended that these be in the same fields as prescribed units. No credit is ordinarily allowed for physical education or music. One unit each may be accepted for commercial subjects, vocational subjects, and mechanical drawing.

Half units will be accepted only when presented in addition to integral units in the same subject or in half year subjects which constitute complete courses in themselves, e.g., solid geometry. Any two of the biological sciences (physiology, botany, zoology) may be combined into a continuous year's course equal to one unit.

Students who in rare cases are accepted without two years of foreign language (these units must be in the same foreign language) will be given opportunity to make up these deficient units but for no credit toward their degrees.

A matriculation deficiency, in a subject continued in the University in which the deficient student attains a grade of C, may be removed by the proper faculty, on the recommendation of the instructor. Students, however, are cautioned not to assume in advance that this will be done.

Admission to Advanced Standing

Admission to advanced standing is by specific action of the Committee on Academic Standing, which will evaluate all credits presented and determine the rating of the candidate.

Students from other institutions of recognized collegiate rank, including junior colleges with well established courses, may be admitted to such standing and upon such terms as the Committee shall deem equitable. Every such candidate is required, besides the prescribed testimonials of character and scholarship, to present a full statement, duly certified, of the subjects he has therein completed and of the subjects there presented for entrance. No student will be considered unless he be in good standing at the last college attended. Good standing is taken to mean that the student is not on academic or disciplinary probation or suspension. The University reserves the right to determine after a test of at least one semester the amount of credit that the applicant may receive, and meanwhile he shall have the status of an unclassified student.

Freshmen may receive advanced placement with credit by demonstrating competence of a high order on the appropriate achievement test or advanced standing examination of the College Entrance Examination Board.

Admission of Special Students

Students not having entrance requirements may be admitted as special students if they are persons of mature age whose experience and test results reflect the ability to do college work. No one will be admitted directly from a secondary school to the status of a special student.

Such special students are not candidates for a degree but they may become candidates by doing satisfactory college work. Registration is for one semester only. At the end of that time they either discontinue their work or become regular students.

Admission of Foreign Students

Candidates for admission who come from foreign countries must present original and complete educational credentials, together with a catalogue giving full description of the courses. Provisional registration may be given pending verification of the record and until the student concerned has successfully completed one semester's work of not less than twelve hours, when permanent matriculation may be given. Students from other than English-speaking countries must present a score in the English achievement test of the College Entrance Examination Board and, in addition, possess sufficient knowledge of English to carry satisfactorily their class work.

Registration

Directions for registering are mailed to each applicant with his letter of acceptance.

The Committee on Admissions acts on applications for entrance to the University during the early spring and will notify at that time by letter all accepted applicants.

Candidates, upon receipt of final notification of the acceptance of their applications, are obliged to forward a guarantee fee of fifty dollars ($50). This is not an additional charge, but will be credited to the student's account after registration. It will be forfeited only if the student fails to give notice of cancellation by August 1.

At the time of their acceptance for entrance to the University all candidates will receive a medical examination form which must be filled out completely and signed by a physician and returned to the University before the student registers. Candidates who do not present the form before registration must do so before the end of the first two weeks of the semester.

Because registration in the separate colleges of the University is limited, each acceptance is for a specific college. Hence, a student will not be permitted to register in any college except the one for which he has been accepted. Any student who desires to change his curriculum or to cancel his reservation must do so by August 1.

Before registering for instruction in any department, the student must obtain a card signed by the Treasurer of the University, showing that a satisfactory settlement of his account has been made. This card is handed to the Registrar, from whom the student will receive his registration forms.

The University reserves the right to close registration at its discretion. This will normally depend on reaching the desired student quota, or on any other pertinent consideration.

Freshman Orientation

Students accepted for the freshman class in the fall of each academic year are brought to the campus for registration three days before the upper classmen for examinations and orientation lectures. The test periods are alternated with lectures on the traditions of the University, its organization, and the opportunities in religious, academic and social activities. All entering freshmen are required to participate.

Examination in Subject A

Lower division entrants in the colleges at Santa Clara must take an examination in Subject A to test ability to write English correctly. Those who fail are required to pass the course in Subject A, without unit credit toward graduation. A fee is charged for this course.

ACADEMIC REQUIREMENTS

A semester hour is the standard for computing the amount of a student's work. It is defined as one lecture, fifty minutes in length, per week for one semester. Three hours of laboratory work are equivalent to one lecture hour. Two hours of preparation on the part of the student are required for each hour of lecture.

Grade Points

A candidate for a degree must satisfy not only the number of semester hours required in his college, but his work must reach a certain standard of excellence. In addition to the required number of semester hours necessary for graduation, each student must earn double that number of grade points, i.e., an average mark in all subjects of C or better.

For a mark of A in a given course, a student receives four times as many grade points as there are semester hours in the subject; for a mark of B, three times as many grade points; for a mark of C, twice as many grade points; for a mark of D, as many grade points as semester hours. A mark of F receives no grade points.

For example: A student receiving a mark of A in a four semester hour course is given 16 grade points. If his mark is a B, he receives 12

grade points; if a C, 8 grade points; if D, 4 grade points. If the mark is an F, the student receives no grade points.

Thus, in a curriculum where 128 semester hours are required for graduation, the maximum number of grade points that can be obtained by a student is 512; the minimum, 256.

No grade points are allowed for transferred work, although the credit from another institution may be accepted. A student may not receive credit for work at another institution either in regular, summer or other sessions without written authorization of the dean of his college.

No student will be advanced to full junior standing who has less than 64 semester hours and 128 grade points by the end of his sophomore year.

Academic Regulations

No student may carry less than 12 hours or more than 17 hours per semester without the approval of his dean. A petition for excess semester hours will be considered only for Advanced Military Science or for students whose scholastic ability has been demonstrated, the usual requirement being a B average.

Written Examinations. Written examinations are held at the middle and end of each semester. A report of the student's progress is then prepared by the registrar's office and mailed to his parents.

A student guilty of dishonesty in an examination will be given a failure for the respective subject. In special cases, the administration may impose the penalty of dismissal from the institution.

Marking System. A student's grade of scholarship is given according to the following marks:

A	Excellent	F	Failure
B	Good	I	Incomplete
C	Average	W	Withdrawn
D	Inferior		

Incompletes. A student's work may be reported incomplete if, due to unavoidable absences, some essential portion of his work in the course remains unfinished after the final examination. An incomplete becomes a failure unless the unfinished work is completed to the satisfaction of the instructor within a period of four weeks after the beginning of the following semester.

Repetition of Courses. A student may with permission repeat a course. If a grade of D or F was received on the first attempt, the student shall register for the course by appending the letter R to the number indicating the units, e.g., "3R."

Credit shall be given only once, when the course is passed the first time. The student's academic record shall be charged with units attempted each time the course is repeated.

A student repeating a course in which he received a grade of C or better shall receive no additional units.

Academic Status

Probation. A student who during any semester fails to maintain a satisfactory average will be put on probation in accordance with the regulations printed below. A student who fails to earn a C average during the first semester of probation will be subject to disqualification or suspension, unless, in the opinion of the Committee on Academic Standing, there is good reason to extend the probation for one more semester.

A freshman who has the deficiency of seven grade points will be placed on probation.

Students to be eligible for advancement to the upper division must have a grade point average of 2.00 at the end of their sophomore year.

Sophomores, juniors and seniors who do not maintain a 2.00 average in each semester are subject to probation.

At the beginning of what would presumably be his final semester, a senior must have an over-all C (2.00) average to be eligible for graduation at the end of the year.

The grade point average is the number of grade points earned divided by the number of units attempted.

Probation continues through the entire semester. A student who is on probation will not be permitted to represent the University in any activity. Under no circumstances will a student on probation be allowed to take as many as fifteen units. This rule will apply even if it prevents a senior from graduating.

Suspension. A student who is on probation for two successive semesters is subject to academic suspension or disqualification. A suspended student may apply for readmission at the end of the period during which he is suspended.

Disqualification. If, in the opinion of the Committee on Academic Standing, a student's work is so poor as to justify the action, or if it is reasonably certain that he does not possess the qualifications necessary for success in the particular field or profession to which he aspires, he may be disqualified. A student who has been disqualified is excluded from further attendance for an indefinite period, the presumption being that he is permanently disbarred from the University.

A freshman who, in his first semester, has a grade point deficiency of eleven or an over-all deficiency of seven at the end of his second semester will be subject to disqualification from the University.

Withdrawal. When a student is to be withdrawn from the University either temporarily or permanently, the Vice President for Student

Services must be informed directly by either a parent or guardian. The student should then report to the Registrar for the Withdrawal Form.

REINSTATEMENT. A student who has been academically suspended from the University may not be readmitted except after the lapse of the period for which he was suspended and through the special action of the Committee on Admissions. If he spends the intervening period in another institution he must present grades of such quality for a full schedule as to give promise of success in the remainder of his college work. His status if readmitted will be "probation."

REQUIREMENTS FOR GRADUATION

In order to be eligible for a degree a student must meet the requirements laid down by his particular college and department.

Residence of at least one year immediately preceding graduation is required for the granting of any degree.

AMERICAN HISTORY AND INSTITUTIONS. All candidates for the bachelor's degree must satisfy the requirements of American History and Institutions. This requirement may be satisfied in any of the following ways:

1. By passing an examination in American History and Institutions. No unit credit will be given for passing this examination.
2. By completing one of the following: Economics 116, History 17A or 17B, History 173A or 173B, History 174A or 174B, Political Science 1-2, Political Science 20A-20B, Political Science 157, Political Science 161, and Political Science 181.
3. By presenting credit for acceptable subjects taken at another collegiate institution.

MILITARY SCIENCE. All undergraduate students are required to take the two-year basic military science program unless exempted by the Faculty Committee on Petitions.

THEOLOGY. Every Catholic student must complete successfully a course in theology each semester of his undergraduate attendance.

CANDIDACY FOR DEGREE. Every student who wishes to become a candidate for a degree in any college of the University must, at the beginning of his senior year after consulting the dean of his college, file with the registrar a written statement of the degree to which he aspires and the work which he proposes to do. He will then be informed whether he may be admitted as a candidate for that degree and whether the work proposed is satisfactory. Any change of purpose must be similarly announced and approved.

Graduation Honors

A candidate for an undergraduate or professional degree who has a grade point average of 3.40 graduates Cum Laude; one who has a grade point average of 3.65, Magna Cum Laude; one who has a grade point average of 3.85, Maxima Cum Laude. Graduation honors are based on the work of the four years.

Attendance

The University requires regular attendance of students at all scheduled classes, assemblies, the annual retreat and all general University academic and religious functions.

It is the prerogative of each instructor to assess penalties for tardiness in attendance at class.

If, in a student's opinion, there be a compelling cause for his absence, such as illness, he may present a written petition to the Committee on Academic Standing. No appeal will be allowed from the Committee's decision.

Numbering of Courses

Courses in the University are divided into three groups: the lower division comprising the studies in the freshman and sophomore years, the upper division comprising studies in the junior and senior years and leading to a bachelor's degree, and graduate division comprising studies leading to advanced degrees.

Courses in the lower division are numbered from 1 to 99. In the upper division they are numbered from 100 to 199 and on the graduate level are numbered upwards from 200. Under certain conditions lower division courses may be taken for upper division credit, but in such cases it is expected that a higher standard of work shall be required and the instructor will assign additional work for such students.

Class Schedules

Students at registration must consult with the dean of their college or his representative concerning their schedule of subjects. No one may enroll in a course or withdraw from one without his consent, upon penalty of receiving no credit in the first case and a failure in the course dropped in the second case. All approved changes must be presented to the office of the registrar on a form provided for that purpose. After five weeks, permission to withdraw from a course without penalty will be granted only for the gravest reasons.

No student will be granted permission to enroll in any course two weeks after its beginning.

Students enrolled in the advanced curriculum of military science are under contract. Such students may not withdraw unless it is recommended or permitted by the PMS and University authorities.

Changing of College or Major

No student, except a freshman on probation, may expect permission to change from one college to another unless, at the time of the proposed change, he has an over-all C average. This will not be required when a student wishes to change from one major to another within the same college. A student who wishes to request such a change must file a petition with the registrar two weeks before the beginning of the semester. If a student who is a minor wishes to transfer from one college to another, written consent of his parent or guardian must be obtained.

Transcripts and Credentials

Students desiring transcripts of records in order to transfer to another school, or for any other purpose, should make early application for the same. Transcripts are not prepared during the busy periods of examination and registration.

Credentials which are accepted for admission become the property of the University and are kept in a permanent file. Credentials presented by students who are not admitted also become the property of the University but are not kept beyond a period of two years.

Sessions

The first semester begins in September and ends about the end of January. The second semester begins in February and ends about the first week in June.

The University offers a six weeks summer session beginning in late June and ending in early August.

Students planning to attend summer sessions at other institutions should, if they wish to receive credit for their work, secure in advance from the dean of their college written approval of the institution they wish to attend and of the specific courses in which they intend to enroll. No credit will be given for any summer courses completed at other institutions with less than a grade of C. Moreover, the dean of the college may require an examination to certify the grade received.

STUDENT CONDUCT

The University expects that students will conduct themselves at all times honorably and in a gentlemanly manner. Matters pertaining to student conduct are under the general direction of the Vice-President for Student Services, who regularly publishes information regarding disciplinary policy. The University will curtail or withdraw privileges of students whose behavior fails to meet the desired standard. The University reserves the right to dismiss students for serious misbehavior.

ALUMNI ASSOCIATION

The object of this association is to strengthen and perpetuate college friendships, to preserve in former students a warm regard for Alma Mater and a lively memory of the substantial benefits she has bestowed, to cherish and advance her interests, to maintain her honor and sustain her reputation by manly and honorable conduct. Officers of the Association are:

Richard J. Lautze '39, President; Ralph M. Grady '47, First Vice-President; William H. McInerney '47, Second Vice-President; Frank Fiscalini '48, Third Vice-President; Joseph T. Nally '50, Treasurer; Joseph C. Tobin '40, Secretary; Rev. Louis I. Bannan, S.J., Faculty Representative; Richard W. Jonsen '55, Alumni Director.

The activities of the Alumni Association are recorded in the quarterly "Santa Claran," published and distributed to members of the Association by the Office of the Alumni Secretary.

MILITARY SCIENCE

WILLIAM P. WHELIHAN, COLONEL
PROFESSOR OF MILITARY SCIENCE

The University maintains a Senior Division Unit of the Reserve Officers Training Corps, to provide facilities whereby students can better prepare themselves for their citizenship responsibilities. The ROTC mission is to produce junior officers who have the qualities and attributes essential to their progressive and continued development as officers in the Army of the United States. The course affords a means for practical training in organization, leadership, and discipline which will be of value to the graduated students in an industrial or professional career.

The training program followed is a general military science curriculum. This is designed to provide the student with a background in military history, weapons, discipline, command and leadership that will qualify him to serve as a small unit leader in any branch of the Army.

The program consists of a two-year basic and a two-year advanced curriculum. All undergraduates are required to take the two-year basic program unless exempted by the Faculty Committee on Petitions. They may petition for relief from this requirement but they must report to the Military Science Department at initial registration and be enrolled in Military Science, pending action on any petition submitted.

Petitions for exemption from, or deferment of, military training will not be received after the end of the first week of attendance in the semester except for physical disability incurred following enrollment.

Exemptions from military training may be granted in the following cases:

1. Veterans of any of the Armed Services.
2. Students who have reached the age of 23 years at the time of initial registration at the University.
3. Physically disqualified as certified by the University Physician.
4. Non-citizens of the United States.
5. Students whose military training at other universities or military academies is accepted by the Professor of Military Science as fulfilling the requirements.
6. Students entering the University with upper division standing.

Students who enter the University with advanced standing are liable for completion of the courses in Military Science according to the following schedule.

Students who have received advanced standing both in time (actual semesters or terms) and in units of credit amounting to:

Any credit of less than 12 units	4 Semesters
One semester or term and at least 12 units	3 Semesters
Two semesters or terms and at least 24 units	2 Semesters
Three semesters or terms and at least 36 units	1 Semester
Four semesters or terms and at least 48 units	None

Enlisted membership in a Reserve Unit or a Reserve program of any of the Armed Services is not recognized as a valid reason for exemption from the mandatory participation in the basic program.

Students exempted from military training must offer an equal number of units of other work in lieu of military science and tactics in order to receive a degree. Selection of these courses must be approved by the Dean of the College in which the student is registered.

A veteran is, as stated, exempt from the military training requirements. His military service will normally qualify him for entrance into the advanced curriculum at the start of his junior year. Veterans are encouraged to consider this opportunity to obtain a commission in the United States Army Reserve.

Admission to the advanced courses is limited to those students who will not have reached their 28th birthday by date of their commission (graduation). They must also have completed the basic curriculum, or have equivalent credit, and pass prescribed academic and physical tests.

Students who meet the above requirements will be selected by the President of the University and the Professor of Military Science for continuance in the advanced program.

Advanced students are under contract with the government to complete their training unless sooner discharged for the convenience of

the government and will be paid a monthly monetary allowance at a daily rate equal to the value of the Army ration ($.90 per day) for a period of not to exceed 595 days.

Advanced students are required to attend one summer training camp of six weeks duration. The student will normally attend summer camp between his junior and senior year. He will be paid at the rate prescribed for a soldier of the 1st grade ($78.00 per month) and in addition will be allowed a travel allowance of 5 cents a mile to and from camp.

Students who complete the advanced program are eligible for appointment and commission by the President of the United States as officers in the United States Army Reserve. Reserve commissions are tendered in all branches of the Army except the Medical and Dental Corps. The branch in which a student is commissioned is determined by his preference, leadership potential, academic background, recommendations of the faculty and staff and needs of the service. A newly commissioned officer will attend his branch school upon being ordered to active duty.

A student who has received his academic degree and has been designated by the President of the University and the PMS as a "distinguished military graduate" may, upon application, be commissioned directly in the Regular Army.

Uniforms and text books are furnished by the Government without cost to the student. The advanced students are furnished a complete uniform which upon completion of the program they are allowed to retain for use on Active or Reserve duty.

At the end of the school year, or if the student leaves the University prior to that time, all Government property including texts must be returned to the Military Department. Any loss or damage to equipment must be paid for by the student.

Each student who signs the ROTC deferment agreement is placed in classification 1-D which defers him from active service while he is a student in good standing at the University and until he receives both his baccalaureate degree and his reserve commission as a second lieutenant. This deferment is cancelled immediately upon the withdrawal from the ROTC program, basic or advanced. Freshmen are not permitted to sign a deferment agreement until they have reached their 18th birthday and have completed successfully the first semester.

Basic Course

1-2. First Year. (1½-1½) Yr. Organization of the Army and R.O.T.C. Individual weapons and marksmanship. Military leaders. Leadership, drill and command. Two hours lecture, one hour drill.

3-4. Second Year. (1½-1½) Yr. Map and aerial photograph reading. Missions and responsibility of the United States Army as a

member of the national defense team. Operations, principles, and fundamentals of small unit tactics and employment of basic military units. Leadership, drill and command. Two hours lecture, one hour drill.

Advanced Course

101. First Year. (3) Leadership techniques and military teaching principles. Organization, mission and function of the branches of the Army. Leadership, drill and command. Three hours lecture, one hour drill.

102. First Year. (2) Principles of small unit tactics applied to the infantry division battle group. Leadership, drill and command. Two hours lecture, one hour drill.

103. Second Year. (3) Operations. Staff organization, duties, forms, records, reports and orders. Military intelligence. Training management. Logistics, the supply and movement of small units. Army administration. Leadership, drill and command. Three hours lecture, one hour drill.

104. Second Year. (2) Military law, concepts of military justice in the Armed Forces of the United States. Role of the United States in world affairs. Service orientation. Leadership, drill and command. Two hours lecture, one hour drill.

Academic subject (45 hours per year). Each year of the Advanced Course, a three unit elective subject will be chosen from one of the following general academic areas, subject to the approval of the PMS.

Effective Communication
Science Comprehension
General Psychology
Political Development and Political Institutions

Summer Training Camp

Attended by Advanced Course students between the junior and senior years. The six (6) weeks of training supplements campus instruction by work in the field. Included are tactical and technical field problems, infantry weapons and combat arms. Emphasis is placed on the development of leadership and individual ability to function effectively as an officer in a small unit. Neatness, military bearing and physical fitness are stressed.

COLLEGE OF ARTS AND SCIENCES

Nobili Hall

COLLEGE OF ARTS AND SCIENCES

GENERAL STATEMENT

The curriculum of the College of Arts and Sciences extends over a period of four years. It assumes that education is concerned with the intellectual and moral development of the whole man and that specialization in particular fields should rest upon a solid training in the liberal disciplines. For this reason the curriculum of the College of Arts and Sciences requires courses in the humanities, rhetoric, mathematics, natural sciences, social sciences, philosophy and religion. Majors are offered in the fields of biology, chemistry, economics, English, history, mathematics, philosophy, physics, political science, pre-dental, pre-medical, psychology, social science, sociology and Spanish.

ENTRANCE REQUIREMENTS

To qualify for freshman standing in the College of Arts and Sciences, applicants must be graduates of an accredited high school and must present no less than sixteen units including the following:

English	3 units
Foreign language (one language)	2 units
Mathematics (algebra and geometry)	2 units
History	1 unit
Laboratory science	1 unit
Optional, advanced course in foreign language, mathematics or laboratory science	1 unit

The remaining six units should be in solid college preparatory subjects rather than in the terminal and industrial courses. Additional courses in foreign language, mathematics, science, English and social studies are recommended.

Students planning to major in science or mathematics should present at entrance to College no less than two sciences (chemistry and physics), and not less than three years of mathematics (including intermediate algebra and trigonometry). Students entering the arts curriculum may fulfill the mathematics requirement by presenting two courses in algebra. (Two units).

The quality of the grades presented for entrance to the College of Arts and Sciences must be above average. Since a C average is required to remain in the College or to receive a degree, it is obvious that something better than a C average should be presented for entrance. Grades of D cannot be accepted in fulfillment of the requirements for entrance to College.

All candidates for admission must present scores from the Scholastic Aptitude Test of the College Entrance Examination Board. Candidates for admission as majors in mathematics or the natural sciences must present, also, Achievement Test scores in advanced mathematics and in any two of the following: chemistry, English or physics. It is recommended that these tests be taken no later than March preceding the desired date of entrance. Arrangements for these tests are made directly with the Educational Testing Service, Box 27896, Los Angeles 27, California.

DEGREES

The College of Arts and Sciences confers the degrees of Bachelor of Arts and Bachelor of Science.

The Bachelor of Arts degree (Classical) is conferred on those students who, presenting at entrance four credits in Latin, complete two more years of Latin in college in addition to the other requirements of the major of their choice.

The Bachelor of Arts degree is conferred on those students who in addition to satisfying the general requirements of the college concentrate on a major in the humanities or the social sciences.

The Bachelor of Science degree is conferred on those students who in addition to satisfying the general requirements of the college concentrate on a major in mathematics or in the life or natural sciences.

THE COMBINED DEGREE

The combined degree, by which a student is allowed to substitute for his senior year in college the professional courses of the first year of the College of Law, is awarded only to students, a) who have done all their undergraduate college work at Santa Clara; b) who have maintained not less than a B average in the junior year in college; c) who complete with not less than a C average all the professional courses required in the first year of the Santa Clara College of Law and a course or courses in ethics approved by the Department of Philosophy; and d) who present not less than 128 units of work. (This minimum may not include units earned in advanced military training.) Such students will be awarded the bachelor's degree from the College of Arts and Sciences after completing the first year of law.

The College of Arts and Sciences does not award the combined degree to students who complete part of their undergraduate studies elsewhere, or who undertake their professional studies in colleges not under the administration of the University.

THE PRE-MEDICAL AND PRE-DENTAL COURSE

Students entering the College of Arts and Sciences with the purpose of later going on to the study of medicine satisfy all the requirements prescribed by the Council on Education of the American Medical

Association by following the major in biology. The curriculum is so arranged that the student may comply with the requirements for entrance to medical schools in three years. However, medical schools generally prefer students with a college degree. It is therefore recommended that pre-medical students spend four years in their preparation and add such cultural courses to their schedule as will better fit them to pass with success through the vast field of experiences which await the physician in the practice of his profession. In this course, too, all requirements for entrance to standard dental schools are met.

NURSING EDUCATION

Students in training at the O'Connor Hospital School of Nursing are admitted to courses in the College of Arts and Sciences. These students are registered in the College and subject to all regulations governing the admission and matriculation of students. Though these students are not registered for a degree program in the College of Arts and Sciences, the credit earned is transferable and applicable to a college degree.

PRE-LEGAL COURSE

Pre-legal requirements are met by students who follow the regular courses in the College of Arts and Sciences and earn sufficiently high grades. (See College of Law, pre-legal preparation.)

ORIENTATION OF FRESHMEN

The University provides placement examinations and orientation lectures for all freshman students during three days after freshman registration in the fall. In addition the College of Arts and Sciences presents a series of orientation lectures designed to acquaint each new student with the educational opportunities offered in the College, and to help him to become quite certain about his major interest by the end of the freshman year. These lectures are given by the Dean and the chairmen of departments offering a major. Freshman students are to attend these lectures. A grade indicating attendance will be recorded on each student's permanent record.

DIVISIONS OF THE COLLEGE

Lower Division

The first two years in the College of Arts and Sciences constitute the lower division. During this time, by studying some subjects prescribed by the college and some he elects, the student extends and deepens the knowledge brought from his secondary school, while, at the same time, he prepares to undertake work in a chosen field of concentration, called the major.

Upper Division

The third and fourth years in the College of Arts and Sciences constitute the upper division and are devoted to more advanced study and limited specialization. Admission to the upper division cannot be allowed until the student has selected a major and has satisfactorily completed the courses and units set down for the lower division.

General Education

The core of the general education program at Santa Clara is the prescribed courses in philosophy and theology. These disciplines are of paramount importance in the Jesuit scheme of education. Philosophy, correctly understood, supplies for all the other disciplines a sound unifying principle necessary in any attempt to synthesize the ever broadening horizons of human learning. Theology, a scientific investigation into the evidences of religious belief, gives the student an adult understanding of his essential relationships to God and to his fellowman. Thus Santa Clara prides itself on the preservation of the tradition of the great European universities which fostered, developed and transmitted the culture which we know today as western civilization.

Still further to broaden his liberal education the student must, with the advice of his counsellor, elect either a second minor to his major, if he is in the teacher education program, or so distribute his upper division electives as to gain a competent knowledge of two or more fields in the humanities or social sciences.

GRADUATION REQUIREMENTS

I. General. The candidate for a degree must:

1. Be in residence for at least one year (two successive semesters) immediately preceding the date of graduation.
2. Complete a minimum of 128 units with at least a C-average.
3. Satisfy the state requirement in "American History and Institutions."

II. In Lower Division. 64 units must be completed with at least a C-average. These will normally include the following courses:

1. Foreign language: 16 units, in not more than two languages. When two years of the same foreign language are presented at entrance from high school, 4 units are allowed. For each additional high school year in the same language, an additional 4 units are allowed.
2. Laboratory science: 8 units.
3. English: 8 units (English 1AB and an elective).
4. Speech: 2 units.
5. Philosophy: 9 units.

6. Theology: courses prescribed each semester for Catholic students.
7. History: 12 units, viz., History 2AB and History 17AB.
8. The prerequisite for the major, generally 6 units, which must be selected at the beginning of the sophomore year.
9. Military science: 6 units.

III. In Upper Division. The student must:

1. Complete 64 units, at least 40 units of which must be in upper division courses, i.e., courses numbered 100-199 in this catalogue.
2. Complete a major of not less than 24 units nor more than 30 units.
3. Complete a minor of 12 upper division units, generally philosophy. Philosophy majors select some other minor.
4. Fulfill all departmental requirements. These will be found under the heading "Description of Courses."
5. Select electives for which he has the prerequisites, unless the department concerned waives this requirement.
6. Present on or before the date specified in the current catalogue an acceptable thesis, the subject of which must be approved by the departmental chairman and the dean of the college. Failure to comply with this regulation will result in the denial of graduation.

Note:

1. The senior thesis offers the student opportunity to do independent work in his major field. He should identify some problem or area of study and perform the necessary experimentation or investigation. He should summarize his findings in a thesis of not less than 5000 words. Information on specific details of thesis form and organization can be secured from the Office of the Dean. Judgment on the acceptability of the thesis rests entirely with the committee on theses.
2. Military Science: students who take advanced military science may count only 6 of the 10 units earned toward graduation.
3. Science and Mathematics Majors must meet the minimum requirements of general education in foreign language, science, theology and philosophy. As occasion offers, they should also present additional units in the humanities and social sciences.

PLANNED CURRICULA

To assist students in planning an adequate curriculum, each department of the College has collaborated in drawing up a pattern of courses including the required lower division courses in general education, a major and minor sequence in upper division courses, and a number of suggested optional or elective courses for students with special interests. These curricula, however, should not be undertaken without first reading the instructions set down by each department under the heading "Departmental Requirements" and without the advice and approval of the head of the department in which the student is registered.

A CURRICULUM FOR BIOLOGY MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Composition	3	English 1B, Literature	3
Language	3	Language	3
Biology 1A, General Zoology	4	Biology 1B, General Zoology	4
Speech 1, Fundamentals	2	Philosophy 9, Logic	3
Military Science 1, Basic Course	1½	Military Science 2, Basic Course	1½
	15½		16½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History	2	Theology 8, Church History	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
Biology 10, Genetics	3	Biology 32, Botany	4
Chemistry 1A, General Chemistry	5	Chemistry 1B, General Chemistry	5
Elective	2-3		
Military Science 3, Basic Course	1½	Military Science 4, Basic Course	1½
	16½ or 17½		15½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, Redeemer & Grace	2
Philosophy 112, Metaphysics	3	Philosophy 122, Philosophy of Man	3
Biology 101, Vertebrate Anatomy	4	Biology 102, Vert. Embryology	4
Physics 2A, General Physics	4	Physics 2B, General Physics	4
Pol. Sci. 20A, American Institutions	1	Political Science 20B, American Institutions	1
Elective	2-3	Chemistry 35A, Organic Chemistry	3
	16-17		17

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	2	Philosophy 132, Social Ethics	2
Biology 107, Histology	4	Biology 109, Histological Technique	2
Biology 111, Physiology	4	Biology 104, History of Biology	2
Biology 195, Special Problems*	2	Biology 156, Ecology	4
English 46A, Survey of Eng. Lit.	3	English 46B, Survey of English Literature	3
		Biology 199, Thesis	1
	17		16

*Permission of Department required.

A CURRICULUM FOR CHEMISTRY MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Comp. and Literature	3	English 1B, Comp. & Literature	3
Chemistry 1A, Inorganic Chemistry	5	Chemistry 1B, Inorganic Chemistry	5
Mathematics 3A, Anal. Geom. & Calc.*	3	Mathematics 3B, Anal. Geom. & Calc.	3
Speech 1, Fundamentals	2	Philosophy 9, Logic	3
Military Science 1	1½	Military Science 2	1½
	16½		17½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History 1	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
History 17A, U. S. History	3	Chemistry 35A, Organic Chemistry	3
Chemistry 16, Quant. Analysis	4	Physics 8, General Physics	4
Mathematics 4A, Anal. Geom. & Calc.	3	Mathematics 4B, Anal. Geom. & Calc.	3
Military Science 3	1½	Military Science 4	1½
	16½		16½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, The Redeemer	2
Philosophy 112, Philosophy of Man	3	Philosophy 122, Metaphysics	3
German 1 or 3**	3	German 2 or 4	3
Chemistry 35B, Organic Chemistry	3	Chemistry 150A, Physical Chemistry	3
Chemistry 35C, Methods of Org. Chem.	2	Chemistry 130, Organic Preparations	2
Physics 9, General Physics	4	Physics 10, General Physics	4
	17		17

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	2	Philosophy 132, Social Ethics	2
Chemistry 101, Adv. Inorg. Chem.	2	Chemistry 110, Adv Quant. Analysis	4
Chemistry 150B, Physical Chemistry	3	Chemistry 105, Inorganic Preparations	2
Chemistry 150C, Phys. Chem. Lab.	2	Chemistry 135, Theories of Org. Chem.	2
Chemistry 180, Methods of Research	1	Electives	5
Chemistry 133, Ident. of Org. Comps.	3	Chemistry 180, Methods of Research	1
Elective	3		
	18		18

*Students unprepared to begin Math. 3A will do Math. 1. This may require lengthening their program to five years.

**To fulfill University and departmental requirements, an additional semester of German may be taken as an elective in the fourth year, or summer work.

A CURRICULUM FOR ECONOMICS MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Comp. and Literature	3	English 1B, Comp. & Literature	3
History 2A, Western Civilization	3	History 2B, Western Civilization	3
Speech 1, Fundamentals	2	Philosophy 9. Logic	3
Foreign Language or Science	3-4	Language or Science	3-4
Military Science 1, Basic Course	1½	Military Science 2, Basic Course	1½
	14½ or 15½		15½ or 16½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History I	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
History 17A, U. S. History	3	History 17B, U. S. History	3
Economics 1A, Principles	3	Economics 1B, Principles	3
Language or Science	3-4	Language or Science	3-4
Military Science 3, Basic Course	1½	Military Science 4, Basic Course	1½
	15½ or 16½		15½ or 16½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, The Redeemer and Grace	2
Philosophy 112, Philosophy of Man	3	Philosophy 122, Metaphysics	3
Economics 114, Economic Theory	3	Economics 100, Statistical Method	3
Economics 122, Money & Banking	3	Economics Elective	3
Other Electives	6	Other Electives	6
	17		17

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	2	Philosophy Electives	4
Economics 116, American Econ. Hist.	3	Economics 110, History of Economic Thought	3
Economics Elective	3	Elective in Economics	3
Other Electives	6	Economics 199, Thesis	1
		Other Electives	3
	16		16

Electives: 12 units in the humanities or social sciences while in the upper division, at least six (6) of which must be 100 courses.
One English course in addition to English 1A-B.

A CURRICULUM FOR ENGLISH MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Comp. & Literature	3	English 1B, Comp. & Literature	3
History 2A, Western Civilization	3	History 2B, Western Civilization	3
Science	4	Science	4
Speech 1, Fundamentals	2	Philosophy 9, Logic	3
Military Science 1, Basic Course	1½	Military Science 2, Basic Course	1½
	15½		16½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History I	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
English 40, Drama, Poetry	2	English 42, Short Story	2
Foreign Language	3	Foreign Language	3
History 17A, U. S. History	3	History 17B, U. S. History	3
Military Science 3, Basic Course	1½	Military Science 4, Basic Course	1½
English 46A, Survey Engl. Literature	3	English 46B, Survey English Literature	3
	17½		17½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, The Redeemer and Grace	2
Philosophy 112, Metaphysics	3	Philosophy 122, Philosophy of Man	3
English, Upper Division	6	English, Upper Division	6
Electives	6	Electives	6
	17		17

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	2	Philosophy Electives	4
English, Upper Division	6	English, Upper Division	6
Electives	7	Electives	4
		English 190, Thesis	1
	17		17

Electives: 12 units in the humanities or social sciences, besides University requirements, at least six (6) of which must be 100 courses.

A CURRICULUM FOR HISTORY MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Comp. & Literature	3	English 1B, Comp. & Literature	3
History 2A, Western Civilization	3	History 2B, Western Civilization	3
Foreign Language or Science	3-4	Foreign Language or Science	3-4
Military Science 1, Basic Course	1½	Military Science 2, Basic Course	1½
Speech 1, Fundamentals	2	Philosophy 9, Logic	3
	14½ or 15½		15½ or 16½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History I	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
History 17A, U. S. History	3	History 17B, U. S. History	3
Foreign Language or Science	3-4	Foreign Language or Science	3-4
Military Science 3, Basic Course	1½	Military Science 4, Basic Course	1½
*Elective	3	*Elective	3
	15½ or 16½		15½ or 16½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, The Redeemer and Grace	2
Philosophy 112, Metaphysics	3	Philosophy 122, Philosophy of Man	3
History 101, Historical Method	2	History, Upper Division	6
History, Upper Division	4	English Elective	2
Electives	6	Electives	4
	17		17

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	3	Philosophy Electives	4
History, Upper Division	6	History, Upper Division	6
Electives	6	Electives	3
		Thesis	1
	17		16

*Electives: 12 units in the humanities or social sciences, besides University requirements, at least six (6) of which must be 100 courses.
One English course in addition to English 1A-B.

A CURRICULUM FOR MATHEMATICS MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Comp. & Literature	3	English 1B, Comp. & Literature	3
Mathematics 3A, Analytics & Calculus	3	Mathematics 3B, Analytics & Calculus	3
Philosophy 9, Logic	3	Physics 8, General Physics	4
Foreign Language	3	Foreign Language	3
Military Science 1, Basic Course	1½	Military Science 2, Basic Course	1½
	15½		16½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History I	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
Mathematics 4A, Analytics & Calculus	3	Mathematics 4B, Analytics & Calculus	3
Physics 9, General Physics	4	Mathematics 8, Theory of Equations	3
Language or Elective	3	Language or elective	3
Military Science 3, Basic Course	1½	Speech 1, Fundamentals	2
		Military Science 4, Basic Course	1½
	16½		17½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, The Redeemer and Grace	2
Philosophy 112, Metaphysics	3	Philosophy 122, Philosophy of Man	3
Upper Division Mathematics	6	Mathematics, Upper Division	6
Mathematics 199A, Seminar	1	History 17B, U. S. History	3
History 17A, U. S. History	3	Mathematics 199B, Seminar	1
Electives	2	Electives	2
	17		17

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	2	Philosophy Electives	4
Upper Division Mathematics	6	Mathematics 199D, Seminar	1
Mathematics 199C, Seminar	1	Mathematics, Upper Division	6
Electives in: Social Science,		Electives	3
English, Education	6	Senior Thesis	1
	17		17

Mathematics majors who intend to obtain the general secondary teaching credential should consult with the Chairman of the Mathematics Department and the Director of Teacher Education concerning modifications of the schedule.
The required language for the mathematics major is German or French.

A CURRICULUM FOR PHILOSOPHY MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Comp. & Literature	3	English 1B, Comp. & Literature	3
Foreign Language or Science	3-4	Foreign Language or Science	3-4
History 2A, Western Civilization	3	History 2B, Western Civilization	3
Speech 1, Fundamentals	2	Philosophy 9, Logic	3
Military Science 1, Basic Course	1½	Military Science 2, Basic Course	1½
	14½ or 15½		15½ or 16½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History I	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
History 17A, U. S. History	3	History 17B, U. S. History	3
Foreign Language or Science	3-4	Foreign Language or Science	3-4
Military Science 3, Basic Course	1½	Military Science 4, Basic Course	1½
Electives	4	Electives	4
	16½ or 17½		16½ or 17½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, The Redeemer & Grace	2
Philosophy 112, Metaphysics or Philosophy 122, Philosophy of Man	3	Philosophy 112, Metaphysics or Philosophy 122, Philosophy of Man	3
Philosophy Elective	2 or 4	Philosophy Elective	4 or 2
Electives	8	Electives	8
	15 or 17		17 or 15

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	2	Philosophy Electives	6
Philosophy Electives	4	Electives	8
Electives	8	Philosophy 190, Thesis	1
	16		17

Note: Philosophy majors must arrange their non-philosophy electives so as to have a minor of 12 upper division units in some one subject.

Electives: 12 units in the humanities or social sciences while in the upper division, at least six (6) of which must be in the 100 courses.
One English course in addition to English 1A-B.

A CURRICULUM FOR PHYSICS MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
Philosophy 9, Logic	3	English 1B, Comp. & Literature	3
English 1A, Comp. & Literature	3	Physics 8, General Physics	4
*German 1 or 3	3	*German 2 or 4	3
Mathematics 3A, Anal. Geom. & Calc.	3	Mathematics 3B, Anal. Geom. & Calc.	3
Military Science 1, Basic Course	1½	Military Science 2, Basic Course	1½
	15½		16½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History I	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
Mathematics 4A, Calculus	3	Mathematics 4B, Calculus	3
Chemistry 1A, General Chemistry	5	Chemistry 1B, General Chemistry	5
Physics 9, General Physics	4	Physics 10, General Physics	4
Miiltary Science 3, Basic Course	1½	Military Science 4, Basic Course	1½
	18½		18½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, The Redeemer & Grace	2
Philosophy 112, Metaphysics	3	Philosophy 122, Philosophy of Man	3
Mathematics 119A, Differential Eqns.	3	Mathematics Elective	3
Physics 101A, Elect. & Magnetism	3	Physics 101B, Elect. & Magnetism	3
Physics 115, Modern Physics	3	Physics 110B, Mechanics	3
Physics 150A, Advanced Laboratory	1	Electives	4
Physics 110A, Mechanics	3		
	18		18

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	2	Philosophy 132, Social Ethics	2
Physics 120A, Atomic Physics	3	Physics 120B, Nuclear Physics	3
Physics 150C, Advanced Laboratory	1	Physics 160, Meth. of Research	1
Political Science 20A	1	History 2B, Western Civilization	3
Speech 1, Fundamentals	2	Political Science 20B	1
Electives	7	Electives	6
	18		18

PHYSICS ELECTIVES: 105, 116, 130A, 130B, 140, 150D, 170.

*To fulfill University and departmental language requirements, additional courses in German may be required.

CURRICULUM FOR POLITICAL SCIENCE MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Comp. & Literature	3	English 1B, Comp. & Literature	3
History 2A, Western Civilization	3	History 2B, Western Civilization	3
Foreign Language or Science	3-4	Foreign Language or Science	3-4
Military Science 1, Basic Course	1½	Military Science 2, Basic Course	1½
Speech 1, Fundamentals	2	Philosophy 9, Logic	3
	14½ or 15½		15½ or 16½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History I	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
History 17A, U. S. History	3	History 17B, U. S. History	3
Foreign Language or Science	3-4	Foreign Language or Science	3-4
Military Science 3, Basic Course	1½	Military Science 4, Basic Course	1½
Political Science 1, Introduction	3	Political Science 2, Introduction	3
	15½ or 16½		15½ or 16½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, Redeemer & Grace	2
Philosophy 112, Philosophy of Man	3	Philosophy 122, Metaphysics	3
Political Science 118A, History of Political Philosophy	3	Political Science 118B, History of Political Philosophy	3
Political Science Elective	3	Political Science Elective	3
Electives	5	English	2
		Electives	3
	16		16

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	2	Philosophy Electives	4
Political Science, 159A, Const'l. Law	3	Political Science Electives	6
Political Science 191, Conference Course in Political Analysis	3	Political Science 190, Thesis	1
Electives	6	Electives	4
	16		17

Electives: 12 units in the humanities or social sciences while in the upper division, at least six (6) of which must be 100 courses.
One English course in addition to English 1A-B.

CURRICULUM FOR PRE-MEDICAL AND PRE-DENTAL STUDENTS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Composition	3	English 1B, Literature	3
Language	3	Language	3
Chemistry 1A, General Chemistry	5	Chemistry 1B, General Chemistry	5
Speech 1, Fundamentals	2	Philosophy 9, Logic	3
Military Science 1, Basic Course	1½	Military Science 2, Basic Course	1½
	16½		17½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History I	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
Biology 1A, General Zoology	4	Biology 1B, General Zoology	4
Chemistry 16, Quantitative Analysis	4	Chemistry 35A, Organic Chemistry	3
History 17A, U. S. History	3	History 17B, U. S. History	3
Military Science 3, Basic Course	1½	Military Science 4, Basic Course	1½
	17½		16½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, Redeemer & Grace	2
Philosophy 112, Metaphysics*	3	Philosophy 122, Philosophy of Man*	3
Biology 101, Vertebrate Anatomy	4	Biology 102, Vert. Embryology	4
Physics 2A, General Physics	4	Physics 2B, General Physics	4
Chemistry 35B, Organic Chemistry	3	English or Social Electives	3-4
Chemistry 35C, Methods of Organic Chemistry	2		
	18		16 or 17

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	2	Philosophy 132, Social Ethics	2
Biology (Upper Division)	8	Biology (Upper Division)	8
Electives	4	Biology 32, Botany	4
		Biology 199, Thesis	1
	16		17

*Students who are reasonably assured of acceptance into medical or dental school at the end of their junior year may take Philosophy 131 and 132 in junior year in place of Philosophy 112 and 122.

Students who elect the four year program will be granted a degree with a major in biology.

A CURRICULUM FOR PSYCHOLOGY MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Comp. & Literature	3	English 1B, Comp. & Literature	3
Biology 2A, General Biology	4	Biology 2B, General Biology	4
Foreign Language	3	Foreign Language	3
Speech 1, Fundamentals	2	Philosophy 9, Logic	3
Military Science 1	1½	Military Science 2	1½
	15½		16½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History I	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
History 17A, U. S. History	3	History 17B, U. S. History	3
Foreign Language	3	Foreign Language	3
Psychology 1A, General Psychology	3	Psychology 1B, General Psychology	3
Military Science 3, Basic Course	1½	Military Science 4, Basic Course	1½
	15½		15½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, The Redeemer & Grace	2
Philosophy 112, Metaphysics	3	Philosophy 122, Philosophy of Man	3
History 2A, Western Civilization	3	History 2B, Western Civilization	3
Psychology 103, Intro. to Measurements	3	Psychology 130, Experimental Psychology	3
Psychology Concentration	3	Psychology Concentration	3
Elective	3	Electives	3
	17		17

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	2	Philosophy Electives	4
English	2	Psychology 190, Research in Psychology	1
Psychology Course from one of the following:		Psychology Concentration	6
		Electives	4
Psychology 110, 120, 135 or 155	3		
Psychology Concentration	3		
Electives	5		
	17		17

Electives: 12 units in the humanities or social sciences, besides University requirements, at least six (6) of which must be 100 courses.
One English course in addition to English 1A-B.

A CURRICULUM FOR SOCIAL SCIENCE MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Comp. & Literature	3	English 1B, Comp. & Literature	3
History 2A, Western Civilization	3	History 2B, Western Civilization	3
Language or Science	3-4	Language or Science	3-4
Speech 1, Fundamentals	2	Philosophy 9, Logic	3
Military Science 1, Basic Course	1½	Military Science 2, Basic Course	1½
	14½ or 15½		15½ or 16½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History I	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
History 17A, U. S. History	3	History 17B, U. S. History	3
Language or Science	3-4	Language or Science	3-4
Sociology 1, Principles	3	Political Science 2, Intro. to Gov.	3
*English Elective	2	Miiltary Science 4, Basic Course	1½
Military Science 3, Basic Course	1½		
	17½ or 18½		15½ or 16½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, The Redeemer & Grace	2
Philosophy 112, Metaphysics	3	Philosophy 122, Philosophy of Man	3
Psychology 1A, General Psychology	3	Economics 1B, Principles	3
Social Science or History Concentration	6	Social Science or History Concentration	6
Social Science or History Elective	3	Social Science or History Elective	3
	17		17

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	2	Philosophy Electives	4
Social Science or History Concentration	3	Social Science or History Concentration	3
Social Science or History Elective	3	Social Science or History Elective	3
*English Elective	2	Thesis	1
**Electives	5	**Electives	4
	17		17

*The English elective may be taken in the sophomore year if the load is only 15½ units exclusive of it.

**Free Electives should not be in the social sciences or history.

A CURRICULUM FOR SOCIOLOGY MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Comp. & Literature	3	English 1B, Comp. & Literature	3
History 2A, Western Civilization	3	History 2B, Western Civilization	3
Foreign Language or Science	3-4	Foreign Language or Science	3-4
Speech 1, Fundamentals	2	Philosophy 9, Logic	3
Military Science 1, Basic Course	1½	Military Science 2, Basic Course	1½
	14½ or 15½		15½ or 16½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History I	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
History 17A, U. S. History	3	History 17B, U. S. History	3
Sociology I, Principles I	3	Sociology 2, Principles II	3
Foreign Language or Science	3-4	Foreign Language or Science	3-4
Military Science 3, Basic Course	1½	Military Science 4, Basic Course	1½
	15½ or 16½		15½ or 16½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, The Redeemer & Grace	2
Philosophy 112, Metaphysics	3	Philosophy 122, Philosophy of Man	3
Sociology, Upper Division Courses	6	Sociology, Upper Division Courses	6
Electives*	6	Electives**	6
	17		17

*One recommended elective: Psychology 1A
**One recommended elective: Mathematics 2A or 2B

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Matrimony	2
Philosophy 131, Basic Ethics	2	Philosophy Elective	2
Philosophy elective	2	Sociology 198, Thesis	1
Sociology 105, Methodology	2	Sociology 125, Contemp. Theory	3
Sociology, Upper Division	3	Sociology, Upper Division	3
Electives	6	Electives	6
	17		17

Electives: 12 units in the humanities or social sciences, besides University requirements, at least six (6) of which must be 100 courses.
One English course in addition to English 1A-B.

A CURRICULUM FOR SPANISH MAJORS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 5, Old Testament	2	Theology 6, Life of Christ	2
English 1A, Comp. and Literature	3	English 1B, Comp. & Literature	3
History 2A, Western Civilization	3	History 2B, Western Civilization	3
Foreign Language	3	Foreign Language	3
Science	4	Science	4
Military Science 1, Basic Course	1½	Military Science 2, Basic Course	1½
		Philosophy 9, Logic	3
	16½		19½

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 7, Church History I	2	Theology 8, Church History II	2
Philosophy 41A, History of Philosophy	3	Philosophy 41B, History of Philosophy	3
History 17A, U. S. History	3	History 17B, U. S. History	3
Spanish 3, or 101	3	Spanish 4, 6 or 102	3
Speech 1, Fundamentals	2	Electives	5
Electives	3	Military Science 4, Basic Course	1½
Military Science 3, Basic Course	1½		
	17½		17½

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 107, God & Creation	2	Theology 108, The Redeemer & Grace	2
Philosophy 108, Philosophy of Man	3	Philosophy 112, Metaphysics	3
Spanish 103, Masterpieces of Spanish Literature	3	Spanish 104, Masterpieces of Modern Spanish Literature	3
Spanish 105, Advanced Composition or	3	Spanish 106, Commercial Spanish or	3
Spanish 101, Survey of Span. Literature	(3)	Spanish 102, Survey of Span. Lit.	(3)
F. L. 111 or 113, Survey of European Literature	3	F. L. 112 or 114, Survey of European Literature	3
Electives	3	Electives	3
	17		17

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Theology 109, The Sacraments	2	Theology 110, Marriage	2
Philosophy 151, Basic Ethics	2	Philosophy Electives	4
History 161A, The Americas	3	History 161B, The Americas	3
Spanish 107, Cervantes	3	Spanish 108, Contemporary Sp. Drama	3
Spanish Elective	3	Spanish Elective	3
Electives	3	Thesis	1
	16		16

CURRICULUM FOR STUDENT NURSES

FIRST YEAR STUDENTS

First Semester

Theology 5, Old Testament	2 semester hours
Psychology 1A, General Psychology	3 semester hours
English 1A, Composition & Literature	3 semester hours
Biology 4, Anatomy & Physiology	5 semester hours
	13 semester hours

Second Semester

Theology 6, The Life of Christ	2 semester hours
Speech 2, Fundamentals of Expression	2 semester hours
Psychology 1B, General Psychology	3 semester hours
English 1B, Composition & Literature	3 semester hours
Biology 3, Microbiology	4 semester hours
	14 semester hours

SECOND YEAR STUDENTS

First Semester

Sociology 1, Principles of Sociology	3 semester hours

Second Semester

Philosophy 82, Ethics	3 semester hours

THIRD YEAR STUDENTS

First Semester

Theology 110, Sacrament of Matrimony	2 semester hours

When students already have collegiate credit in any of the above courses, substitutions of other courses in the same or different fields may be made on the advice of the University and with the approval of the School of Nursing.

LOS GATOS CAMPUS

Sacred Heart Novitiate located above Los Gatos is a branch campus of the University of Santa Clara. Work on this campus is devoted exclusively to preparation for the priesthood of members of the Society of Jesus. Studies pursued here are the first of twelve years of study. The curriculum at Los Gatos comprises humanistic and classical studies.

Aims

The Priesthood demands men well formed in asceticism, deeply trained in scientific, philosophical, and theological studies, and in genuine culture. To attain these ends the Los Gatos campus follows a four year program. The first two years, technically known as the Novitiate, are taken up mainly with religious formation. However, during this period the Novices take regular college courses in Latin, Greek, and speech.

The last two years at Los Gatos are called the Juniorate. Here the scholastics devote themselves to studies in the Liberal Arts. The curriculum prescribes Latin, English, Greek, history, French, speech, education, and mathematics.

Entrance Requirements

Minimum requirements demand four years with grades above average of academic high school work including four years of Latin.

THE GRADUATE DIVISION

Alexis I. Mei, S.J., Ph.D., *Director*

The administration of the University re-established a Graduate Division in the College of Arts and Sciences in the academic year 1957-58. Graduate level courses leading to the degree of Master of Arts are offered at present in English, history, and education. Other departments of the College of Arts and Sciences will announce graduate courses as the program develops.

For complete information about the graduate program in the College of Arts and Sciences, consult the Announcements of the Graduate Division. Confer College of Business Administration and College of Engineering for the graduate program in these colleges.

DESCRIPTION OF COURSES AND DEPARTMENTAL REQUIREMENTS

Explanatory Note

The credit value of each subject in semester units is indicated for each semester by a number in parentheses following the title. A semester unit is one hour of the student's time weekly, during one semester, in lecture or recitation, together with the time necessary in preparation therefor; or a longer time in laboratory or other exercises not requiring preparation. The session in which the subject is given is shown as follows: I, first semester (September to January); II, second semester (January to June); no Roman numeral indicates the subject may be offered either the first or second semester; Yr., through-out the first and second semesters.

A subject designated by a double number (for example, History 2A-2B) is continued through two successive semesters, ordinarily from September to June. Occasionally, however, the first part of a year's course may begin in February. The student should use the first number in registering for the subject during the first semester, and its second number during its second semester. The first half is normally prerequisite to the second half.

BIOLOGY

Chairman of the Department
Francis R. Flaim, Ph.D.

Lloyd L. Bolton, Ph.D., Chairman Emeritus

Students who wish to make Biology their major subject should plan to meet the following requirements for graduation.

1. Biology 1A-1B and Chemistry 1A-1B must be completed with at least a C grade before beginning any upper division course in Biology. For students who, after the freshman year, obtain permission to change their major to biology, completion of Biology 2A-2B, with at least a C grade in each, may be accepted as the equivalent of Biology 1A.
2. Biology 32 and Physics 2A-2B must be completed with at least a C grade. Attention is drawn to the fact that trigonometry is prerequisite to Physics 2A.
3. In upper division, of the required minimum of 30 units in science, at least 24 units must be taken in Biology, and additional units should be taken in Chemistry. Chemistry 35A must be com-

pleted with at least a grade of C. Chemistry 35B and 35C are desirable for all and should be taken by those who plan professional studies in medicine.

4. a. A grade of C must be maintained in all courses in the major field.

   b. Each candidate for a degree may be required to pass a comprehensive examination in his major field. This examination may be oral, written, or both and will be scheduled within the last six weeks period of the senior year.

*1A. General Zoology. (4) I. Introduction to principles of animal biology: protoplasm, cell, metabolism, organ systems, adaptations, life cycles, inheritance, etc.: laboratory study of type animals. Prerequisite to all courses for major in biology. Two hours lecture, six hours laboratory.

*1B. General Zoology. (4) II. Continuation of 1A including study of main animal phyla with type examples. Prerequisite: Biology 1A or 2A and 2B.

2A. General Biology. (4) I. Introduction to basic biological processes and principles for non-majors; laboratory illustrates and supplements lectures. Three hours lecture, three hours laboratory. Prerequisite: High School chemistry is desirable.

2B. General Biology. (4) II. Continuation of 2A including a survey of plant and animal kingdoms. Prerequisite: Biology 2A or equivalent.

3. Microbiology. (4) II. Elementary course for student nurses: form and function of pathogenic and non-pathogenic bacteria, yeasts, molds, protozoa. Three hours lecture. Three hours laboratory and demonstration.

4. Anatomy and Physiology. (5) I. Course for student nurses: structure and function of human organ systems: laboratory; individual dissection of cat, study of models of human organs, microscopic study of human tissues and organs. Three hours lecture, six hours laboratory.

10. Genetics. (3) I. Introduction to basic principles governing inheritance in plants and animals: laboratory includes breeding of Drosophila and interpretation of results; statistical studies of plant and animal, including human, inheritance. Two hours lecture, three hours laboratory. Prerequisites: Biology 1A and 1B.

32. General Botany. (4) II. Basic principles of plant biology: morphology, physiology and phylogenetic relationships of major

*Formerly Biology 21 and 22.

groups: laboratory work illustrates and supplements lectures. Two hours lecture, six hours laboratory. Prerequisite: Biology 1A or 2A and 2B.

101. VERTEBRATE ANATOMY. (4) I. Comparative structure, organization, adaptation and classification of vertebrates: laboratory of shark, necturus, cat. Two hours lecture, six hours laboratory. Prerequisites: Biology 1A-1B.

102. VERTEBRATE EMBRYOLOGY. (4) II. Cell division, gametogenesis, fertilization: development of various types of eggs to establishment of basic vertebrate body plan. Organogenesis, extra embryonic membranes. Laboratory emphasizes amphibian, bird, mammal. Two hours lecture, six hours laboratory. Prerequisites: Biology 1A-1B and 101.

104. HISTORY OF BIOLOGY. (2) II. Development of the science of biology and its various branches with biographical sketches of leaders in each field. Outlook for future: Normally restricted to senior majors. Two hours lecture.

107. GENERAL HISTOLOGY. (4) I. Protoplasm, the cell, structure and histogenesis of the basic tissue types. Two hours lecture, six hours laboratory. Prerequisites: Biology 1A-1B, 101.

109. HISTOLOGICAL TECHNIQUE. (2) II. Theory and practical instruction in basic methods of preparing biological materials for microscopic examination. Principles, use and care of apparatus. Six hours laboratory. Prerequisites: Biology 1A-1B, 101, 107.

111. GENERAL PHYSIOLOGY. (4) I. Fundamental physiological processes of plant and animal cells, organs, and organ systems. Laboratory includes vertebrate organ systems, use of kymograph and other standard physiological apparatus. Two hours lecture, three hours laboratory. Prerequisites: Biology 1A-1B.

156. GENERAL ECOLOGY. (4) II. Plant and animal populations, habitats, relationships and adaptations: applied ecology. Laboratory and field work includes identification of plants and animals and quantitative methods. Two hours lecture, six hours laboratory and field trips. Prerequisites: Biology 1A-1B and 32.

195. SPECIAL PROBLEMS. (2) I. Individual supervised work in some specialized field may be undertaken by senior students who have shown exceptional ability. Arrangements must be made before registering.

196. SPECIAL PROBLEMS. (2) II. Same as 195.

199. SENIOR THESIS. (1) II. This may be based entirely upon a survey of literature of an approved biological subject, or it may incorporate, in addition, results of work done as "Special Problems" 195-196.

CHEMISTRY

Chairman, Department of Chemistry
Joseph F. Deck, Ph.D.

Students who wish to make Chemistry their major must complete the following lower division courses: Chemistry 1A and 1B, Chemistry 16, Chemistry 35A, B and C. Physics 8, 9, and 10. Mathematics 3A, 3B, 4A and 4B. A grade of C must be maintained in each course. A reading knowledge of scientific German is required, and some use and application of it will be required in one or more chemistry courses taken during the upper division program.

The major undergraduate program includes the following upper division courses in Chemistry: Chemistry 130, Chemistry 150A, B and C, Chemistry 110, Chemistry 101 and 105, Chemistry 133 and 135. A laboratory thesis is required of all students majoring in chemistry, Chemistry 180. With the permission of the Chairman of the Department, certain advanced elective courses in physics or mathematics may be substituted for an advanced upper division elective course in chemistry.

In order to be elegible for full membership in the American Chemical Society in the minimum time after graduation, a chemistry major must fulfill the minimum requirements adopted by the Society for professional training of chemists. Further details of these requirements are obtainable from the director's office or the department advisors.

For the Teaching Major — Refer to index "Teacher Education Program."

1A. General Chemistry. (5) I. Fundamentals and properties of the elements and compounds. A comprehensive discussion of the laws and theories of chemistry. Illustrative problems. Three hours lecture, six hours laboratory.

1B. Inorganic Chemistry. (5) II. Continuation of Chemistry 1A. Experimental investigation of ionic equilibria and a systematic analysis of cations and anions. Illustrative problems. Three hours lecture, six hours laboratory.

2A. General Chemistry. (4) I. Elementary principles and properties of the more important elements with their compounds. A brief but systematic study of important theories. Primarily intended for the non-professional student. Three hours lecture, three hours laboratory.

2B. General Chemistry. (4) II. Continuation of Chemistry 2A. Descriptive study of the elements completed, ionic equilibria discussed and demonstrated in the laboratory. Brief discussion of organic chemistry. Qualitative analysis. Three hours lecture, three hours laboratory.

3A. General Chemistry. (4) I. Introductory theory and experiments for engineers. Periodic table. Structural chemistry. Valence. Stoichiometry. Gases, solutions, kinetics, equilibria, electrochemistry and problems. Three hours lecture, three hours laboratory.

3B. General Chemistry. (3) II. Continuation of Chemistry 3A. Description of elements and their compounds, emphasizing reference to periodic chart. Brief discussion of organic chemistry. Three hours lecture.

16. Quantitative Analysis. (4) I. Theories of acidimetry, alkalimetry, oxidimetry, iodometry, iodimetry. Brief discussion of principles of gravimetric analysis. Ionic equilibria. An introduction to the techniques of volumetric and gravimetric analyses. Two hours lecture, six hours laboratory. Prerequisites: Chemistry 1A, 1B.

35A. Organic Chemistry. (3) II. Aliphatic Compounds. Introductory discussion of the properties and preparation of open carbon compounds. Introduction to structural theories and mechanisms. Illustrative problems. Three hours lecture. Prerequisites: Chemistry 1A, 1B.

35B. Organic Chemistry. (3) I. Cyclic compounds, carbohydrates. Aromatic hydrocarbons and their derivatives. Theories of dyes and color. Introduction to heterocyclic organic chemistry.

35C. Methods of Organic Chemistry. (2) II. Discussion and application of the common techniques of organic chemistry. Experimental preparation and study of the common classes of organic compounds. Prerequisites: Chemistry 35A, and 35B. Six hours laboratory.

54. Physical Chemistry. (3) II. An elementary, non-mathematical treatment of physical chemistry, emphasizing those principles applicable to medical sciences. Intended for pre-medical and pre-dental students. Prerequisites: Chemistry 1A, 1B, 16, 35A and 35B.

101. Advanced Inorganic Chemistry. (2) I. Basic atomic structure, valence, radioactivity, isotopes and periodic law. Correlation of family properties to position in periodic chart. Properties of less common elements, e.g., rare earths and transuranium elements. Prerequisites: Chemistry 1A, 1B, 16. Two hours lecture.

105. Inorganic Preparations. (2) II. Practical application of experimental methods in synthetic inorganic chemistry. Vacuum techniques are introduced. Six hours laboratory. Prerequisites: Chemistry 1A and 1B, Chemistry 16.

110. Advanced Quantitative Analysis. (4) II. Principles and use of instruments in analytical chemistry. Electro-methods, potentiometric, conductotometric and amperometric titrations, polarography, controlled cathode potential electrodeposition, pH by glass and

antimony electrodes. Colorimetry, spectrophotometry and emission spectography. Two hours lecture, six hours laboratory. Prerequisite: Chemistry 16.

130. ORGANIC PREPARATIONS. (2) II. Advanced treatment of synthetic methods as applied to preparation of more difficult organic compounds. Reading knowledge of German is essential. Vacuum distillations, chromatography, extractions, etc. Six hours laboratory. Prerequisites: Chemistry 35A and 35B.

133. IDENTIFICATION OF ORGANIC COMPOUNDS. (3) I. Identification and classification of organic compounds. Illustrative problems and unknowns. One hour lecture, six hours laboratory. Prerequisites: Chemistry 35A and 35B.

135. THEORIES OF ORGANIC CHEMISTRY. (2) II. The structure of organic compounds, evaluating present theories from analytical and resonating structures. Mechanics of classical rearrangements and tautomeric equilibria. Infrared absorption as a tool in organic analyses. Two hours lecture. Prerequisites: Chemistry 35A and 35B.

140. BIOCHEMISTRY. (3) II. An introductory study of the carbohydrates, lipids, proteins, constituents of blood and urine, Enzymes, the colloidal state, digestion and biological oxidations. Prerequisites: Chemistry 35A, B. Three hours lecture.

150A. PHYSICAL CHEMISTRY. (3) II. Laws and theories of chemical systems as applied to their equilibrium and energy relationships. Introduction to chemical thermodynamics. Prerequisites: Chemistry 16, 35A and 35B. One year of college physics and a working knowledge of calculus. Three hours lecture.

150B. PHYSICAL CHEMISTRY. (3) I. Continuation of Chemistry 150A. Prerequisite: Chemistry 150A. Three hours lecture.

150C. PHYSICAL CHEMICAL MEASUREMENTS. (2) I. Exercises in the practice of physical chemical laboratory methods. Prerequisite: Chemistry 150A. Six hours laboratory.

153. STRUCTURE OF MOLECULES. (2) Spectroscopic and diffraction methods, for determining molecular structure. The directed covalent bond. Description of structure of selected inorganic and organic molecules in the gaseous phase. Two hours lecture. Prerequisites: Chemistry 150A, B.

180. METHODS OF RESEARCH. (2) Introduction to chemical research and other more advanced chemical laboratory work, results of which are incorporated in senior thesis, required for graduation of all chemistry majors. Thesis is under direction of some member of chemistry staff.

Graduate Program

201. Inorganic Chemistry. (3) Oxidation-Reduction potentials of the elements. The stereochemistry of inorganic compounds, the mechanism of inorganic reactions; non-aqueous solutions and hydrides. Three hours lecture.

202. Inorganic Laboratory. (3) Advanced laboratory in experimental inorganic chemistry. Stock high vacuum method. Non-aqueous solutions. Nine hours laboratory.

210. Special Topics in Analytical Chemistry. A physico-chemical interpretation of analytical processes. Preparation of samples for analysis, separation and methods of final estimation. Complex materials. Credit to be arranged.

230. Heterocyclic Organic Chemistry. (3) Intensive discussion of the preparation and reactions of five and six membered rings with one heteroatom. Brief introduction to other classes. Three hours lecture.

231. Quantitative Organic Analysis. (2) The chemical analysis of organic compounds based on the reactions of functional groups. Physical methods of quantitative analysis and chemical separations of mixtures. Six hours laboratory.

232. Physical Organic Chemistry. (3) Discussion of experimental evidence for reaction mechanisms and logical methods for formulating reaction mechanisms from experimental data. Three hours lecture.

250. Chemical Thermodynamics. (3) Rigorous discussion of the laws of thermodynamics. Ideal and non-ideal systems. Chemical potential. Introduction to statistical mechanics and thermodynamics of surfaces, fields and radiation. Problems. Three hours lecture.

251. Structural Chemistry. (3) Non-mathematical introduction to the ideas of quantum mechanics. Comparison of valence bonds and molecular orbital descriptions of very simple molecules. Interpretation of the structures of molecules and crystals in terms of bond type, ionic character, orbital hybridization resonance, bond lengths and ionic radii. Three hours lecture.

252. Quantum Mechanics. (3) Review of basic quantum theory, Schrodinger wave equation with applications to particle in box, harmonic oscillator and hydrogen atom. Perturbation theory. Variation method. Discussion of helium atom, hydrogen molecule ion and hydrogen molecule. Three hours lecture.

270. Seminar. Credit by arrangement.

280. Research. Credit by arrangement.

ECONOMICS

Chairman of the Department
John Pagani, Ph.D.

Students who wish to make Economics their major subject must complete in the lower division Economics 1A and 1B with an average grade of at least C. This course is a prerequisite for all upper division courses in Economics. Students who have not fulfilled this requirement must receive special permission from the Chairman of the Department of Economics.

The major program must include not less than 24 units of upper division work in Economics, including Economics 100, 110, 114, 116 and 122.

An average of C must be maintained in all courses of the major, and at the end of the senior year each student must be ready to pass a comprehensive final examination.

In addition to the units in Economics, a major in this field must include 6 units in each of two related social study fields. In each of these courses he may not present less than a grade of C.

Students in the College of Arts and Sciences should consult the College of Business Administration for course descriptions of work in Economics.

EDUCATION

Chairman of the Department
Edwin J. Brown, Ph.D.

Required courses for the General Secondary Credential are offered. For information regarding this program refer to the Index "Teacher Education Program."

A-B. Prescribed Physical Training. (1-1) Yr. Freshmen who are physically fit and who are ineligible for R.O.T.C. (see page 56) are required to meet two periods a week for physical training.

C-D. Prescribed Physical Training. (1-1) Yr. Sophomores who are physically fit and who are ineligible for R.O.T.C. (see page) are required to meet two periods a week for physical training.

1A-1B. Prescribed Physical Training. Participation in Physical Education under the direction of the Director of Athletics. Units and time to be determined by the Director with the approval of the Dean.

2. Boxing—Beginning and Advanced. (1) Instruction in techniques of boxing. One period a week.

*110. RATIO STUDIORUM. (2) An examination of the principles, methods, and practices observed in the schools of the Society of Jesus, as embodied in the Ratio Studiorum. Comparison with current educational theory and practice.

111. PRINCIPLES AND PHILOSOPHY OF EDUCATION. (2) A survey of principles, philosophy, and theory of education affecting present day procedure. Theories and principles are oriented with the philosophy of education. (See Philosophy 165).

112. SECONDARY EDUCATION AND THE CURRICULUM. (3) The scope, function, curriculum, and organization of the American secondary school. The American high school's historical background is given attention.

113. INTRODUCTION TO EDUCATIONAL PSYCHOLOGY. (3) The psychological problems involved in education, with practical application of psychological principles. Special emphasis given to the nature of learning.

114. METHODS AND MANAGEMENT. (2) Classroom procedures in the secondary school. Methods and evaluation of instruction. Classroom management problems emphasized.

116. AUDIO-VISUAL AIDS. (2) Experience in and discussion of the methods and the mechanics of presenting classroom work with the use of audio-visual aids.

117. PSYCHOLOGY OF ADOLESCENCE. (2) The important physical, mental, and moral changes occurring during the adolescent period. Considers the development of the attitudes, interests, and problems of the teenage.

118. GROWTH AND DEVELOPMENT. (2) Consideration of the processes through which the normal human being reaches maturity, acquires effective use of his bodily equipment and learning capacity. (One, but not both, courses, 117, and 118, is offered.)

120. INTRODUCTION TO TESTS AND MEASUREMENTS. (2) The purpose of measurement in education. Consideration of standardized tests of intelligence and achievement. Other means of evaluating learning.

126. PRINCIPLES AND PRACTICES OF GUIDANCE. (2) A basic course covering philosophies of guidance. The psychological, sociological, and physiological factors involved in vocational, educational, social, health, and recreational guidance.

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*Given on Los Gatos campus only.

Graduate Courses

201. Public Education in the United States. (3) The organization, control, program, and financing of public education in the United States, with special emphasis upon current issues in the field of public education.

202. Professional Methods. (2) A special methods course in the subject or field directly relating to the teaching major or minor, or both. To be taken concurrently with Education 320.

203. Professional Methods—English. (3) Objectives of teaching English. Organization of subject matter. Procedures in teaching literature, composition, grammar, and allied skills. (Summer session only.)

210. Modern Curriculum Trends. (2) Principles and practices of curriculum construction in modern American schools. Evaluation of the curriculum. (Summer session only.)

255. Guidance and Counseling in the High School. (3) Organized to supplement Education 126. Uses problems in the organization and administration of both group and individual guidance and counseling in the high school.

260. Introduction to Educational Statistics. (3) Supplements Education 120. The arrangement, display, and interpretation of statistical data. Treats such concepts as central tendency, distribution, prediction, and variability.

270. Educational and Vocational Guidance. (3) Investigates the various sources of occupational information. The problems of collecting and filing printed materials. Methods of disseminating such information .

275. Historical and Philosophical Backgrounds of Education. (2) Comparative philosophies of education in their historical backgrounds. History of education in the light of the basic philosophy back of it.

280. The Teacher and School Administration. (3) The role of the classroom teacher in school administration. Principles, procedures and trends that reflect teacher participation in democratic adminstration.

320A. Directed Teaching. (3) Participation and practice under supervision conducting classes in public high schools. Conferences with supervising instructors and with the Director of Teacher Education.
Prerequisites: Graduate standing and Education 202 and 114.

320B. Directed Teaching. (3) Participation and practice under supervision in conducting classes in public high schools. Conferences with supervising instructors and with the Director of Teacher Education.
Prerequisites: Graduate standing and Education 202 and 114.

ENGLISH

Chairman of the Department
John J. Quinn, Ph.D.

Students who wish to make English their major subject must complete English 1A-1B, 46A-46B, 40 and 42 with at least a grade of C.

The major program must also include 24 units of upper division courses. English 103A-B and 105 are required of all majors. For emphasis in English literature, English 120 and two of the following are required: English 113, 114, 115, 116, and 122. For emphasis in American literature, English 108A-B and English 123 are required. English majors planning graduate work or teaching as a profession should inform their English adviser early in their course. An average grade of C must be maintained in all courses of the major.

The Master's Degree—See the Announcement of the Graduate Division.

For the Teaching Major. Refer to index. "Teacher Education Program."

Subject A. Remedial work for those who fail composition placement tests or who cannot do satisfactory work in collegiate English. Successful completion of the Subject A requirement is prerequisite to graduation. Three hours.

1A-B. First-year Composition and Literature. (3-3) Yr. Expository, argumentative, persuasive, descriptive, narrative writing. Readings and analyses. First semester stresses exposition, academic form, use of university library.

40. Poetry (2) The mechanics and structure of various types of poetry. Exercises in poetic analysis and composition. Required of all majors.

42. The Short Story. (2) Readings, analyses of types of short stories. Limited practice in short-story writing. Required of all majors.

46A-B. Survey of English Literature. (3-3) Yr. Readings in the literature of England (a) from the beginnings to the decline of Neo-Classicism (b) from the pre-Romantic period to the present. Required of all majors.

51. ADVANCED COMPOSITION AND LITERATURE. (3) I. and II. The short story and the drama. Creative papers and essays in analysis of the various genres. Offered primarily to students in the College of Business Administration .

53A-B. JOURNALISM: NEWS WRITING. (1-1) Yr. Theory and practice of reporting and writing for news media. Laboratory and outside assignments.

54A-B. JOURNALISM: NEWS WRITING. (1-1) Yr. Theory and techniques in editing of news media. Copy editing, headline writing, news display, illustration. Laboratory work in conjunction with the student newspaper.

55. HISTORY OF JOURNALISM. (1) II. Development and progress of journalism from earliest times. Famous editors. Editorial policies.

101. HISTORY OF THE ENGLISH LANGUAGE. (3) II. (Even yrs.). Origin and development of morphology, vocabulary, syntax of English in Great Britain and the United States.

103A-B SHAKESPEARE. (3-3) Yr. (Odd yrs.) An intensive study of selected plays and an introduction to Shakespearean criticism and scholarship. 103A offered Fall semester. Required of all majors.

105. CHAUCER. (3) I. (Even yrs.). Chaucer's life. Literary, social, philosophical, religious backgrounds. Reading in Middle English mainly of CANTERBURY TALES. Student papers on tales.. Required of all majors.

106. LITERARY CRITICISM. (3) II. (Odd yrs.). Representative critical theory from Plato to Conrad. Analysis of practical application of literary theory by great creative writers. Case-book method including discussion of modern literary theory.

107A-B. COMPARATIVE LITERATURE. (3-3) Yr. (Even yrs.). Ancient, medieval, modern masterpieces in translation. Consideration of authors, historical background, literary theories, relation to English and American literature. Recommended to majors as elective and to non-majors as alternative elective to English 46A-B.

108A-B. SURVEY OF AMERICAN LITERATURE. (3-3) Yr. (Even yrs.). Literature of the United States (a) from the beginnings to the Civil War (b) from the Civil War to the present. Required for American Literature emphasis.

112. THE ENGLISH DRAMA. (3) I. (Odd yrs.). English drama from medieval to modern period. Types, excellence, literary, theories considered in milieu of the various ages.

113. THE RENAISSANCE PERIOD. (3) I. (Odd yrs.). Literature of the English Renaissance—(1485-1660).

114. THE NEO-CLASSICAL PERIOD. (3) II. (Even yrs.). Literature (prose and poetry, except novel) from 1660-1798. Genres, excellence, literary principles considered in milieu of the age.

115. THE ROMANTIC PERIOD. (3) I. (Odd yrs.). Prose and poetry of England's Age of Romanticism—(1798-1832).

116. THE VICTORIAN PERIOD. (3) I. (Even yrs.). Prose, poetry, drama of the Victorian Period—(1832-1901).

119. MODERN BRITISH LITERATURE. (3) II. (Even yrs.). Prose, poetry, drama of Britain since the Victorian Age. Representative forces in twentieth-century thought.

120. ENGLISH NOVEL. (3) I. (Even yrs.). Backgrounds, origins, critical history. Reading of novels in chronological sequence from eighteenth through twentieth centuries. Student papers. Required for English Literature emphasis.

121. CREATIVE WRITING WORKSHOP. (3) I. (Odd yrs.). Writing of all genres of literature, especially imaginative literature, by choice. Prerequisites: English 40 and 42, or equivalent.

122. THE MEDIEVAL PERIOD. (3) II. (Odd yrs.). Social, philosophical, religious backgrounds. Readings in all literary genres from epic to morality plays.

123. AMERICAN NOVEL. (3) II. (Odd yrs.). Reading of important novels and a historical survey. Emphasis on major writers. Required for American Literature emphasis.

124. CONTEMPORARY AMERICAN WRITERS. (3) II. (Even yrs.). Poets, short-story writers, non-fictional prose writers, dramatists of the twentieth century.

125. PROBLEMS IN MODERN PROSE FICTION. (3) Prose architectonics from Flaubert to Faulkner. To include analysis of point of view, symbolism, and dramatic structure.

190. RESEARCH TECHNIQUES. (1) Supervised work for the senior thesis.

GRADUATE COURSES

200. INTRODUCTION TO GRADUATE STUDY. (3) Bibliography. Methods and materials for literary research Required of M.A. candidates.

202. OLD ENGLISH. (3) Language and selected literature of the Old English period. Linguistic laws. Vocabulary formation. Required of M.A. candidates.

203. ENGLISH GRAMMAR AND LINGUISTICS. (3) Historical survey of traditional parts of speech and syntax. Consideration of contemporary leaders in structural linguistic movement in English grammar. Papers and reports.

205A-B. STUDIES IN CHAUCER. (3-3) Yr. Special attention to language, literary characteristics, literary, philosophical background. CANTERBURY TALES, TROILUS and CRISEYDE in alternate semesters. Papers and reports.

208A-B. SEMINAR IN AMERICAN LITERATURE. (3-3) Yr. Research into significant works of major figures. Special attention to historical, literary backgrounds.

210. SEMINAR IN RENAISSANCE DRAMA. (3) Research into background and development of selected, representative plays.

213. SEMINAR IN RENAISSANCE LITERATURE. (3) Research into the more significant works. Special attention to literary characteristics and philosophical background.

214. SEMINAR IN EIGHTEENTH-CENTURY LITERATURE. (3) Research into the more significant works. Special attention to philosophical, critical backgrounds.

216. SEMINAR IN VICTORIAN LITERATURE. (3) Research into selected works of Victorian and later English writers. Special attention to philosophical, religious, social backgrounds.

224. STUDIES IN PROSE. (3) Analysis of problems peculiar to modern prose fiction.

290. DIRECTED RESEARCH. One to six units.

DEPARTMENT OF FOREIGN LANGUAGES

ACTING CHAIRMAN OF THE DEPARTMENT
GERHARDT E. STEINKE, PH.D.

BACHELOR OF ARTS

The degree of Bachelor of Arts may be taken in French or Spanish. Candidates majoring in French or Spanish must have completed the first two-year courses or their equivalent in the language of their choice. Candidates must complete a minimum of 24 units of upper division work in the language of their choice.

LANGUAGE LABORATORY

During the first two years of French, German, Spanish, and Italian, students are required to listen to tapes on the assigned lesson for at least one hour a week. This is supplementary to the required three hours of classroom work. This laboratory hour is regarded as an integral part of the course and absence from this hour is equivalent to a regular class absence.

Foreign Literature in Translation

The Department of Foreign Languages offers a series of four upper division courses in world literature and the history of ideas in English translation. There is no language prerequisite for these courses. The general aim is to give the student a unitary discipline and synthetic understanding of the wisdom of our Western civilization through an intensive analysis and study of the great works of Western Literature from Dante to the present. The specific aim is the fusion of four or five disciplines such as the literary, philosophical, theological, historical, critical, and aesthetic in an attempt to re-clarify the de-facto communion of religion and culture in Western civilization.

109. Greek Literature in Translation. (3).

110. Latin Literature in Translation. (3).

111. European Literature I. (3) 1300-1550, Dante, Chaucer, Boccaccio, Machiavelli, Pico della Mirandola, More, Erasmus, Luther, Rabelais, Marlowe.

112. European Literature II. (3) 1550-1780, Montaigne, Cervantes, Milton, Shakespeare, Corneille, Descartes, Mme. de la Fayette, Racine, Voltaire, Lessing, Goethe, Molière.

113. European Literature III (3) 1780-1870, Diderot, Rousseau, Kant, Fichte, Schleiermacher, Blake, Constant, Kleist, Hegel, Hugo, Pushkin, Gogol, Manzoni, Marx, Hebbel, Stendhal, Comte, Turgenev, Balzac, Feuerbach, Mill, Flaubert, Darwin, Ibsen, Kierkegaard, Dostoievsky, Tolstoy, Zola, Strindberg.

114. European Literature IV. (3) 1870 present. Baudelaire, Mallarmè, Valèry, Rilke, Nietzsche, Gide, Pirandello, D. H. Lawrence, Bergson, Claudel, Bloy, Mauriac, Chesterton, Freud, Proust, Joyce, Hesse, von le Fort, Bernanos, Hopkins, Eliot, Sartre, Mann, Undset, Kafka, Camus, Unamuno, Russell, Shaw, yGasset.

French

French majors should complete all lower division requirements while in lower division. A minimum C average must be maintained in both lower and upper division work. The major program must include 24 units of upper division work, one year of college Latin or its high school equivalent, and any two courses in the series 111, 112, 113, 114. A comprehensive final examination is given at the end of the senior year.

1-2. Elementary French. (3-3) Yr. Drill in pronunciation, elements of grammar and vocabulary. Progressive exercises in reading, writing and speaking. Three hours recitation, one hour laboratory.

3-4. INTERMEDIATE FRENCH. (3-3) Yr. Review of grammar and syntax. Reading of original authors, exercises in translation, composition and conversation. Three hours recitation, one hour laboratory.

100A-100B. ADVANCED COMPOSITION AND READING. (3-3) Yr.

I. Survey of French Civilization from its early beginnings to the French Revolution.

II. Survey of French Civilization from the French Revolution to the present.

Conversation, composition and reading in French on topics of each period. Two hours discussion, outside reading assignments

101-102. SURVEY OF FRENCH LITERATURE. (3-3) Yr.

I. The Middle Ages to Romanticism.

II. Romanticism to the present.

Two hours lecture, outside reading assignments.

107. DIRECTED READING. (1) By arrangement.

111-112. FRENCH LITERATURE I. (3-3) Yr. The Middle Ages and the Renaissance. Two hours lecture, outside reading assignments.

113-114. FRENCH LITERATURE II. (3-3) Yr. The Seventeenth Century. Two hours lecture, outside reading assignments.

115-116. FRENCH LITERATURE III. (3-3) Yr. The Eighteenth Century. Two hours lecture, outside reading assignments.

117-118. FRENCH LITERATURE IV. (3-3) Yr. The Nineteenth Century to 1885. Two hours lecture, outside reading assignments.

119-120. FRENCH LITERATURE V. (3-3) Yr. Contemporary French Literature from 1885 to present. Two hours lecture, outside reading assignments.

199. FRENCH LITERATURE SEMINAR. (3) A special course designed for students desiring to major or minor in French and who find it impossible to enroll in the regular courses offered by the department. Departmental permission required. Weekly papers and discussions required on assigned outside reading.

CLASSICS

1. ELEMENTARY GREEK. (3) I. Inflections and syntax. Composition.

2. ELEMENTARY GREEK. (3) II. Continuation of 1.

21. PLATO. (3) Phaedo.

22. HOMER. (3) Iliad.

Latin

1. Elementary Latin. (3) I. Inflections and syntax. Composition and easy readings.

2. Elementary Latin. (3) II Continuation of 1.

3. Intermediate Latin. (3) I. Reading of Cicero's Speeches. Composition.

4. Intermediate Latin. (3) II. Reading of Vergil's Aeneid. Composition.

100. Caesar. (3) Civil War.

101. Cicero. (3) Philosophical Dialogues.

102. Livy. (3) Books XXI and XXII.

104. Horace. (3) Odes and Epodes.

107. Directed Reading. (1 to 3) Selected readings adapted to the needs of the individual.

German

1-2. Elementary German. (3-3) Yr. Drill in pronunciation, elements of grammar and vocabulary. Progressive exercises in reading, writing and speaking. Three hours recitation, one hour laboratory.

3-4. Intermediate German. (3-3) Yr. Continuation of grammar through the subjunctive. Reading of original authors. Exercises in translation, composition and conversation. Three hours recitation, one hour laboratory.

100A-100B. Advanced Composition and Reading. (3-3) Yr. Review of grammar and syntax. German composition, translation, oral and written reports and intensive reading. Three hours recitation.

101-102. Survey of German Literature. (3-3) Yr.

I. The Liberal Age 1830-1870.

II. The Age of Crisis 1870-1950. Two hours lecture, one hour discussion.

107. Directed Reading. (1) By arrangement.

Italian

1-2. Elementary Italian. (3-3) Yr. Drill in pronunciation, elements of grammar, and vocabulary. Progressive exercises in reading, writing and speaking. Three hours recitation, one hour laboratory.

3-4. Intermediate Italian. (3-3) Yr. Review of grammar and syntax. Reading of original authors. Exercises in translation, composition and conversation. Three hours recitation, one hour laboratory.

100A-100B. ADVANCED ITALIAN GRAMMAR, COMPOSITION AND CONVERSATION. (3-3) Yr.

101-102. SURVEY OF ITALIAN CULTURE AND CIVILIZATION. (3-3) Yr.

I. From its origin to the "settecento."

II. The "ottocento" and the "novecento." Two hours lecture, one hour discussion.

103. "I PROMESSI SPOSI" (3) Reading and interpretation of Manzoni's great romantic novel.

104. MODERN ITALIAN LITERATURE. (3) Contemporary trends in poetry, drama, and the novel.

105-106. DANTE, LA DIVINA COMMEDIA. (3-3) Reading and interpretation of text.

107. DIRECTED READING. (1) By arrangement.

SPANISH

Spanish majors should complete all lower division requirements while in lower division. A minimum C average must be maintained in both lower and upper division work. The major program must include 24 units of upper division work, one year of college Latin or its high school equivalent, any two courses in the series 111, 112, 113, 114 and History 161A and 161B, History of the Americas. A comprehensive examination is given at the end of the senior year.

1-2. ELEMENTARY SPANISH. (3-3) Yr. Drill and pronunciation, elements of grammar and vocabulary. Progressive exercises in reading, writing and speaking. Three hours recitation, one hour laboratory.

3-4. INTERMEDIATE SPANISH. (3-3) Yr. Review of grammar and syntax. Reading of original authors. Exercises in translation, composition and conversation. Three hours recitation, one hour laboratory.

100A-B. SPANISH COMPOSITION AND READING. (3-3) Yr. Composition, sight reading, oral and written reports in Spanish. Prerequisite: Spanish 4.

101. SURVEY OF SPANISH LITERATURE TO 1580. (3) Lectures and commentaries in Spanish, on the literature of Spain from its origin to the beginning of the Golden Century. Reading and written reports of representative works of this period. Prerequisites: Spanish 100A-B.

102. SURVEY OF SPANISH LITERATURE FROM 1580 TO 1680. (3) Continuation of Spanish 101.

103. SURVEY OF SPANISH LITERATURE FROM 1680 TO 1898. (3) Continuation of Spanish 102.

104. Spanish Literature of the XX Century. (3) Reading, interpretation and discussion of significant works by the writers of the generation of 1898 and by contemporary Spanish authors.

107. Directed Reading. (1) By arrangement.

111. Cervantes. (3) Reading and interpretation of "Don Quixote" and Cervantes' other works.

112. Lope de Vega and the Drama of the Golden Age. (3) Study and interpretation of dramas by Lope, Calderon, Tirso and other outstanding writers of the Golden Age.

120-121. Survey of Latin American Literature. (3-3)Yr. Lectures and commentaries in Spanish on the literature of Spanish America from its origin to the present day. Reading and discussion of representative works.

130. Introduction to Spanish Linguistics. (1) A study of the structure of Spanish language. Phonetical changes from Latin to Old Spanish. Basque, Arabic and other elements in Spanish.

190. Supervised work for the senior thesis. (1).

HISTORY

Chairman of the Department
Edwin A. Beilharz, Ph.D.

Students who wish to make History their major subject, besides completing the other required courses of the lower division, must pass the courses in History 2A-2B, and History 17A-17B, and, at a time to be chosen by the student, an additional six units in Political Science, Sociology, Economics, or Psychology with at least a grade of C.

The major program must include 24 units of upper division work in history. History 101 is required. An average grade of C must be maintained in all courses of the major and at the end of the senior year each student must pass a comprehensive final examination.

The Master's Degree—See the Announcement of the Graduate Division.

For the Teaching Major—Refer to index "Teacher Education Program."

2A-2B. History of Western Civilization. (3-3) Yr. A general survey of western culture from its beginnings to the present, emphasizing those institutions which have shaped our modern civilization.

17A-17B. The Survey in United States History. (3-3) Yr. A general course sketching the chief factors in our national develop-

ment. Colonial beginnings. The Revolution. The Constitution. Political history of the United States.

101. INTRODUCTION TO HISTORICAL METHODS AND BIBLIOGRAPHY. (2) Prescribed in the junior year for, and restricted to, students majoring in History. Two papers and a bibliography are prepared by each student. The use of the library is emphasized.

121. THE MIDDLE AGES. (3) A study of the development of medieval society and institutions leading to the cultural flowering of the High Middle Ages, and to its decline.

131A. THE RENAISSANCE AND REFORMATION. (3) A critical study of the revival of the old and the birth of new learning. The Protestant Revolt and the Catholic Counter Reformation.

131B. THE SEVENTEENTH AND EIGHTEENTH CENTURIES. (3) The rise of absolute monarchs. The struggle for European pre-eminence and world empire. The Benevolent Despots.

133. THE FRENCH REVOLUTION. (3) A study of the causes, the course, and the significance of the French Revolution and the Career of Napoleon.

135. RUSSIA. (3) Russian Political Evolution. The downfall of the Tsarist regime. The rise of communism, the establishment and development of the Soviet system, its internal politics and foreign relations. The satellites.

145. THE NINETEENTH CENTURY. (3) A study of the revolutionary movements in Europe stemming from the French and Industrial Revolutions. The rise of the middle classes and the struggle for liberal constitutional government. Underlying social unrest.

146. THE. TWENTIETH CENTURY. (3) The intensification of national and imperial rivalries in Europe, culminating in universal wars. Social upheavals and their effects. Attempts at world organization to enforce peace.

151. HISTORY OF ENGLAND. (3) The growth of the English state and constitution. The English reformation. Constitutional struggles under the Tudor and Stuart monarchs.

155. THE BRITISH COMMONWEALTH AND EMPIRE. (3) A study of developments in England and in the British world system in modern times. The rise of the free dominions. Imperial problems in India, the Near East, and Africa. England in the two world wars and their aftermath.

160. SPAIN AND THE SPANISH EMPIRE. (3) Origins and spread of political, economic, social and cultural institutions in the Hispanic world.

161A-161B. History of the Americas. (3-3) Yr. The aboriginal world. The course of exploration and conquest. The colonial systems. The revolutions in North and South America. Organization of the new self-governing nations. Inter-American relations. The Monroe Doctrine, Pan-Americanism and the Good Neighbor Policy.

164. The Northern Republic of South America. (3) An area study of the political, economic, social, and cultural trends in Venezuela, Columbia, Ecuador, Peru and Bolivia from the colonial period to modern times.

165. The A.B.C. Countries. (3) A study of the history of Argentina, Brazil, and Chile, with attention to their special character, resources, and problems.

166. Mexico. (3) The history of Mexico from the sixteenth century to the present, with emphasis on the national period.

171A-171B. History of the United States. (3-3) Yr. A general course sketching the chief factors in our national development. Colonial beginnings. The Revolution. The Constitution. Political history of the United States.

173A-173B. The United States in the Nineteenth Century. (3-3) Yr. A history of the United States from the inauguration of Washington to the rise of progressivism and the war with Spain.

174A-174B. Recent History of the United States. (3-3) Yr. The major developments in domestic problems and in foreign relations since 1896.

187. History of the West. (3) The spread of the frontier and the emergence of special western problems, with emphasis on the period since the Civil War.

189. California. (3) The history of California, with major attention given to the period following its annexation to the United States.

191. The Far East. (3) A general history of the East Asiatic nations, with emphasis on the recent period.

198. Research Techniques. (1) Supervised work for the senior thesis.

Graduate Courses

(Concerning conditions for the admission to graduate courses, refer to the Announcements of the Graduate Division.)

201A-201B. Historiography and Historical Criticism. (2-2) Yr. A study of selected historians and schools of historical interpretation.

220A-220B. Seminar in Medieval History. (3-3) Yr.

240A-240B. Seminar in Modern European History. (3-3) Yr.

270A-270B. Seminar in United States History. (3-3) Yr.

280A-280B. Seminar in North American History. (3-3) Yr.

283A-283B. Seminar in Hispanic American History. (3-3) Yr.

298. Directed Research. (2 to 6) For graduate students in history.

HONORS PROGRAM

Chairman

Reverend Theodore J. Mackin, S.J., S.T.D.

The honors program, as a unit divided into the semester courses listed below, is an intensified study of the culture of Europe and America from its beginnings until the present. Students are selected for the program at the end of freshman year, and are admitted after rigorous testing.

The content of the program is the great literature of the West, either in primary-source form or in critical studies, and the best historical studies of the culture that has produced that literature. Each course proceeds in seminar form, with single two-hour meetings once a week. Seminar moderators are engaged from the University faculty as well as from neighboring universities. Each course is held to a limit of fourteen student participants.

90. Hellenic to Hellenistic Civilization. (3) I. The Homeric age to the last century before Christ. (Sophomore year).

91. The Roman Empire. The Byzantine Empire, through the Middle Ages. (3) II. The first through the fourteenth centuries. (Sophomore year).

110. The Renaissance and Reformation: The Early Modern Period. (3) I. The fifteenth through the sixteenth centuries. (Junior year).

111. From the Early Modern through the Modern Periods. (3) II. The seventeenth through the nineteenth centuries to 1870. (Junior year).

150. Twentieth Century Europe: 1870 to the Present. (3) I. (Senior year).

151. Twentieth Century America. (3) II. (Senior year).

MATHEMATICS

Chairman of the Department
Irving Sussman, Ph.D.

In addition to providing courses required by students of the Engineering College and the Departments of Physical Science, the Mathematics Department offers work leading to a major or minor in Mathematics, as well as courses for general education and teacher training.

Prerequisite for the upper division courses, except where noted otherwise, are the lower division courses 3A, 3B, 4A, 4B, and 8. In addition, unless this requirement is waived in writing by the department chairman, the student shall have completed at least one college year of physical science or the equivalent in acceptable engineering courses. In general, a student will be permitted to undertake upper division work in mathematics only if his grades in the lower division courses clearly indicate an aptitude and ability to undertake the more advanced work successfully.

A minimum of 24 approved units of upper division mathematics courses, besides seminar requirements, is required for the major in Mathematics. In addition, a minimum of one college year of one of the languages, German, French or Russian, is required. Consultation with the chairman before the beginning of the junior year will be necessary for admission to the major program.

A weekly one-hour seminar is required of all majors in Mathematics during the junior and senior years, and students will be held also to such qualifying examinations and study projects as may be prescribed by the Department.

Lower Division

D. Trigonometry. (2) A make-up no-credit course for entering science and engineering students whose scores in the mathematics placement examination are not satisfactory. May be taken, upon permission, concurrently with 3A.

Available to non-science students for two units credit.

1. Introduction to College Mathematics. (3) A thorough review of Algebra and Trigonometry, designed particularly for students majoring in the physical sciences, engineering and mathematics whose high school background has not fully prepared them for Mathematics 3A. Five hours.

Prerequisites: Two years of high school Algebra, one year of Plane Geometry, one half year Trigonometry.

2A. Basic Concepts of Modern Mathematics. (3) A course on the collegiate level stressing modern mathematical thought and materials. Designed as a Liberal Arts course, this course will nevertheless be useful for science majors.

2B. Basic Concepts of Modern Mathematics. (3) A continuation of Mathematics 2A.

Prerequisite for Mathematics 2A and 2B: Two years of high school mathematics. By permission of the instructor, either part may be taken separately.

3A. Analytic Geometry and Calculus. (3) Analytic Geometry from the vector point of view. Functional concepts and graphing. Basic concepts of the Calculus. Three hours lecture and one hour recitation or quiz.

Prerequisite: Three and one half years of high school mathematics and acceptance by qualifying examination; or, alternatively, an acceptable grade in Mathematics 1.

3B. Analytic Geometry and Calculus. (3) Continuation of Mathematics 3A. Introduction to the concept of real numbers and the ideas of limit and infinitesimal function. Theorems and applications of calculus.

Prerequisite: Mathematics 3A or equivalent.

4A. Analytic Geometry and Calculus. (3) Mean value theorems. Methods of formal integration. Approximate integration. Analytic Geometry of space, principally by vector methods. Partial differentiation. Applications.

Prerequisite: Mathematics 3B, or equivalent.

4B. Analytic Geometry and Calculus. (3) Coordinate systems. Multiple integration. Introduction to Infinite Series. Applications.

Prerequisite: Mathematics 4A.

8. Theory of Algebraic Equations. (3) Topics include Complex Numbers, general theorems on algebraic equations, solution of cubic and quartic equations, simultaneous equations, inequalities, introduction to Probability.

Prerequisite: Mathematics 3B.

(Note: Math. 8 carries upper-division credit for non-science majors, and is re-numbered Math. 118 when thus used).

101. Intermediate Analysis. (3) A rigorous investigation of the real number system, with other topics as time permits. Concepts of limit; continuity, differentiability of functions of one real variable; theorems of Differential and Integral Calculus.

Prerequisites: Mathematics 4B and Mathematics 8.

102. ADVANCED CALCULUS. (3) Special functions, Lagrange Multipliers, Jacobians, the implicit function theorem, change of variables in multiple integrals.

103. VECTOR ANALYSIS. (3) The algebra of vectors. Applications to mechanics, electricity and geometry. Vector functions and vector calculus. Applications of gradient, divergence and curl. Green's and Stokes' theorems. Three hours.

Prerequisite: Mathematics 4B.

105. INTRODUCTION TO COMPLEX VARIABLES. (3) Cauchy-Riemann equations, elementary complex functions, the Cauchy integral theorems, complex series, conformal mapping, residues.

107. ELEMENTARY MATHEMATICS FROM THE ADVANCED STANDPOINT. (3) Concepts of elementary mathematics, stressing underlying structure and fundamental ideas. Topics from such fields as abstract algebra, theory of numbers, higher geometry, vectors, probability and statistics.

108. ELEMENTARY MATHEMATICS FROM THE ADVANCED STANDPOINT. (3) A second semester of topics of elementary mathematics, along the lines of Math. 107. Math. 108 may be taken independently of Math. 107 with special permission of the instructor.
(Note: Courses 107 and 108 are recommended for present and prospective high school teachers.)

109. MATRIX THEORY. (3) Linear transformations and the algebra of matrices. Applications to geometry, engineering and physics. Other topics, as time permits.

Prerequisites: Mathematics 4B and 8.

110. ADVANCED ENGINEERING MATHEMATICS. (3) Special topics in higher mathematics useful to engineers and physicists, such as Hyperbolic Functions, Elliptic Integrals, Fourier Series, Partial Differential Equations. Applications.

111. ABSTRACT ALGEBRA. (3) Postulational systems in general and their underlying logic. Elementary theory of groups, rings and fields.

Prerequisites: Mathematics 3B and Mathematics 8.

112. FOUNDATIONS OF GEOMETRY. (3) Basic ideas of geometry as the subject has developed from ancient Greek times, but with emphasis on the modern phases. Non-Euclidean and Projective Geometries.

Prerequisite: Mathematics 3B.

113. HIGHER GEOMETRY. (3) Advanced topics in analytic and synthetic geometry.

Prerequisite: Mathematics 3B.

114. Elementary Point Set Topology. (3) Set theory, the real numbers as a linear space, topological spaces and transformations.

115. Elementary Number Theory. (3) Euclid's algorithm and the fundamental theorems on divisibility. Theorems of Fermat, Euler and Wilson. Quadratic residues. Diophantine analysis.
Prerequisites: Mathematics 3A and Mathematics 8.

118. Algebraic Equations. (3) (See note following Math. 8).

119. Differential Equations. (3) Solution of ordinary differential equations and applications to mechanics, engineering and electricity. Introduction to series solutions and numerical methods.
Prerequisite: Mathematics 4B.

120. Probability and Statistics. (3) Introductory probability theory and statistical inference.

130. Methods of Mathematical Physics. (3) A course designed to introduce the student to the mathematical techniques used in modern day physics. (See Physics 130).
Prerequisites: Physics 110A and 110B, Mathematics 102.

160. Introduction to Symbolic Logic. (2) Elementary Set Theory. The concept of a Boolean Algebra. The methods and principles underlying the algebra of symbolic logic, as developed from postulational beginnings. Development of the Propositional Calculus. (See Philosophy 160).

166. Numerical Analysis. (3) Interpolation formulas. Numerical differentiation and integration. Numerical solution of algebraic, transcedential and differential equations.
Prerequisites: Mathematics 119, or 4B and permission of the instructor.

99. Honors Seminar. (0) Individual and joint projects for outstanding freshmen and sophomore students on important mathematical topics not covered in other courses, or extending such materials.

190. Directed Study. (1-3) Reading and investigation for superior students under the direction of a staff member. For credit this study must receive written approval of the Departmental Chairman and of the Dean of the College, and is subject to reports and examinations.

199. Upper Division Seminar. (1) Required of mathematics majors. Conduct of the seminars is at the discretion of instructors conducting them, according to the needs of the student participants.

MUSIC

DIRECTOR
S. ROSS BERGANTZ, A.B.

The University offers no major in music. However, credit may be earned in elective units in any one of the various colleges of the University.

Music courses are offered so that students will be afforded the opportunity of experiencing music as an integral part of their cultural life; to present music as a means of broadening their field of action and to give them an opportunity to participate in the various extra-curricular activities approved by the University.

1. BAND. (1) Two, one hour-and-a-half sessions and one sectional rehearsal per week. Open to all students whose musicianship meets with the requirements set by the instructor.

2. GLEE CLUB. (1) Two, one hour-and-a-half sessions and one sectional rehearsal per week. Open to all students whose musicianship meets with the requirements set by the instructor.

3. SACRED MUSIC. (1-1) I and II. Rudiments of Gregorian Chant, harmony and polyphony. Theory put to practice by singing at Mass and other functions in the Mission Church.

5. FUNDAMENTALS OF MUSIC. (2) An introductory course in musicianship. A study of the fundamentals of notation, exercises in sight reading with a view to developing proficiency in reading and singing.

10A-10B. HISTORY AND APPRECIATION OF MUSIC. (2-2) I and II. History of the principal types of music and of the principal composers. The course aims also at imparting some understanding of the technical elements of music. Lectures supplemented by recordings.

11. CHORAL MUSIC. (2) A study of choral music, chiefly sacred, including Gregorian Chant, polyphony, and modern works.

12. THE SYMPHONY. (2) A study of symphonic works from the mid-eighteenth century to the present. Every third week a three-hour listening period will replace one lecture.

13. THE OPERA. (2) A study of the opera from Mozart to the present. Every third week a three-hour listening period will replace one lecture.

PHILOSOPHY

Chairman of the Department
Reverend Austin Fagothey, S.J., M.A.

Students who wish to make Philosophy their major subject, besides completing the other required courses of the lower division, must pass the course in Philosophy 41A-41B with at least a grade of C.

The major program must include 24 units of upper division courses in Philosophy. An average grade of C must be maintained in the major subject and, at the end of the senior year, each student must be ready to pass a comprehensive final examination.

A minor, including 12 upper division hours in addition to the lower division prerequisites, must be chosen by each student making Philosophy his major.

Required Courses

Students in Arts and Sciences and in Business Administration are required to take Philosophy 9, 41A-41B, 112, 122, and 131. They should also normally take Philosophy 132, but may substitute another course if they have had a sufficient amount of social studies.

Students in Engineering are required to take Philosophy 61, 62, 63, and 64.

Students in Nursing are required to take Philosophy 82.

9. Logic. (3) An introductory course in formal or traditional logic. The science of correct thinking, comprising both deductive and inductive inference. Exercises in logical reasoning and in the detection of fallacies.

41A-41B. History of Philosophy. (3-3) Yr. A comprehensive survey of the whole history of philosophy, ancient, medieval, and modern.

61. Logic. (1½) I. This subject, together with Philosophy 62, 63, and 64 constitutes a compendious course designed for engineering students only. Traditional logic and scientific method. Exercises in logical inference. Three hours of lecture.

62. Nature and Man. (1½) II. Introduction to philosophy. Cosmology or the philosophical study of the physical universe. Rational psychology or the philosophical study of man. Engineering students only.

Prerequisite: Philosophy 61. Three hours of lecture.

63. Knowledge and Reality. (1½) I. The problems of epistemology and natural theology. The theory of knowledge: the validity of human reason in its pursuit of truth. The existence, nature, and

attributes of God. His relations to the universe. Engineering students only.

Prerequisite: Philosophy 62. Three hours of lecture.

64. ETHICS. (1½) II. General principles of ethics and their application to man's individual and social life: man's personal, marital, proprietary, industrial, political, and international rights and duties. Engineering students only.

Prerequisite: Philosophy 63. Three hours.

82. ETHICS. (2) General principles of morality and their practical application to the chief spheres of human conduct. Emphasis is placed on the medical aspects of morality for the benefit of professional students.

112. METAPHYSICS. (3) Ontology and natural theology. Being and becoming, essence and existence, substance and accident, cause and effect. Philosophical theories on God and the universe examined and evaluated.

Prerequisites: Philosophy 41A-41B.

122. PHILOSOPHY OF MAN. (3) Philosophical psychology as distinct from empirical psychology. Man in his unity; his sensitive, intellectual, and volitional life.

Prerequisites: Philosophy 41A-41B.

*131. BASIC ETHICS. (2) I. The general principles of morality. The aim of human life, the norm of morality, the moral law, obligation and responsibility, virtue and vice, rights and duties.

Prerequisites: Philosophy 112 and 122, unless expressly exempted.

*132. SOCIAL ETHICS. (2) II. The application of general moral principles to definite human rights and duties. The ethics of society; domestic, industrial, political, and international.

Prerequisite: Philosophy 131.

ELECTIVE COURSES

Several of the following courses are offered each semester. Those majoring in Philosophy may choose among them to fill out the required total of 24 upper division units. Those minoring in Philosophy may do the same to complete their required total of 12 upper division units. These courses are open to other students with upper division standing.

139. PHILOSOPHY OF NATURE. (2) The main problems of cosmology: the structure of the physical universe and its philosophical interpretation. Matter and energy, quantity and motion, space and time. Mechanistic and teleological theories compared.

*131 formerly Phil. 151; 132 formerly 152.

140. THEORY OF KNOWLEDGE. (2) A critique of knowledge: idealistic and realistic attitudes. The metaphysics of knowledge: formal truth and certitude.

141. PLATO. (2) Reading and interpretation of the greater Dialogues in conjunction with the commentators. Historical influence of Platonism.

142. ARISTOTLE. (2) Introduction to the Aristotelian corpus. Either the Organon, the Physical works, the Metaphysics, the Ethics, or the Politics will be read and the various theories of interpretation considered.

143. THOMISTIC SYNTHESIS. (2) An attempt, working from the Thomistic text, to disengage the fundamental unifying principles which give the Thomistic philosophy its lasting value.

144. SEVENTEENTH CENTURY PHILOSOPHY. (2) The rationalism of Descartes, Spinoza, and Leibniz, as contrasted with empiricism of Locke, Berkeley, and Hume. A more intensive study of some of these philosophers' writings.

145. KANT. (2) Immanuel Kant's reaction to the empiricism of Hume and the rationalism of Leibniz; his influence on Fichte, Shelling, and Hegel. Selections from the major works will be read and analyzed.

146. EXISTENTIALISM. (2) The existentialist movement in Continental European thought. Kierkegaard, Heidegger, Jaspers, Sartre, Marcel, and their impact on present-day culture. Readings and interpretative evaluations.

147. AMERICAN PHILOSOPHY. (2) A survey of the main movements in American philosophy from its beginning, with particular stress on recent and contemporary trends, such as pragmatism, instrumentalism, and personalism.

148. SPANISH PHILOSOPHY. (2) Its origins. The medieval period: Ramon Lull. Banesianism and Molinism. Krausianism, Balmes, Unamuno, Ortega y Gasset. The Two Spains: Pidal and Menendez-Pelayo. Contemporary trends: Marias, Ramirez, Calvo-Serer.

160. SYMBOLIC LOGIC. (2) Elementary Set Theory. The concept of a Boolean Algebra. The methods and principles underlying the algebra of symbolic logic, as developed from postulational beginnings. Development of the propositional Calculus. (See Mathematics 160.)

161. AESTHETICS. (2) An historical introduction to the problems of aesthetics. The philosophy of the Beautiful; the nature and relationship of art and prudence, and the nature of poetic intuition.

162. PHILOSOPHY OF HISTORY. (2) A study of the attempts philosophers have made to discover the nature of history and its recurrent patterns, if any. Critical evaluation of these theories.

163. PHILOSOPHY OF SCIENCE. (2) Points of contact between philosophy and science. Scientific methodology: its aim, procedure, and validity.

164A-164B. POLITICAL PHILOSOPHY. (3-3) Yr. A survey of the basic concepts of justice, right, law, and sovereignty as treated by various Western political philosophers. Same as Political Science 118A-118B. Only one semester of this subject will be counted towards a major or minor in philosophy.

165. PRINCIPLES AND PHILOSOPHY OF EDUCATION. (2) A survey of the principles, philosophy, and theory of education affecting present day procedure. Theories and principles are oriented with the philosophy of education. (See Education III).

190. RESEARCH TECHNIQUES. (1) Supervised work for the senior thesis. Required of all majoring in philosophy.

PHYSICS

CHAIRMAN OF THE DEPARTMENT
JOHN B. DRAHMANN, PH.D.

Students who wish to make Physics their major subject are required to complete in addition to general requirements for the Bachelors degree, the following lower division courses: Physics 4A, 4B, and 4C; Chemistry 1A-1B; and Mathematics 3A-3B, 4A-4B. A grade of C or better must be maintained in each course.

The major program must include the following upper division courses: Physics 101A-101B, 110A-110B, 115, 120A-120B, 150A, 150C, 160. For those students intending to do graduate work, Physics 130A-130B are recommended.

2A. GENERAL PHYSICS. (4) Mechanics, heat and sound. Elective for non-science majors. Required for pre-medical students. Prerequisite: Math. 1 or the equivalent. Three hours lecture, three hours laboratory.

2B. GENERAL PHYSICS. (4) Electricity and magnetism, light and modern physics. Prerequisite. Physics 2A. Three hours lecture, three hours laboratory.

*4A. GENERAL PHYSICS. (4) Concepts of velocity, acceleration, displacement, force, work, momentum, energy. Equilibrium. Fluid mechanics. Prerequisite: Math. 3A (may be taken concurrently). Three hours lecture, three hours laboratory.

*4A formerly 8; 4B formerly 9; 4C formerly 10.

*4B. General Physics. (4) Heat and Thermodynamics, Fundamentals of electricity and magnetism, including electric and magnetic fields, potential, DC circuits, induced electromotive force, magnetic properties of matter. Prerequisite: Physics 4A. Three hours lecture, three hours laboratory.

*4C. General Physics. (4) Continuation of electricity and magnetism. Alternating currents and electromagnetic waves. Optics, including both geometrical and physical optics. Introduction to modern physics. Prerequisite: Physics 4B. Three hours lecture, three hours laboratory.

101A. Electricity and Magnetism. (3) Vector analysis. Electrostatic field and potential in vacuum and in linear dielectrics. Linear steady and time-varying circuit analysis. Prerequisites: Physics 4B, 4C; Math. 119A (may be taken concurrently). Three hours lecture.

101B. Electricity and Magnetism. (3) Magnetostatic field and potentials in vacuo and in linear media. Ferromagnets. Maxwell's equations. Radiation and propagation of electromagnetic waves. Covariant description of the classical electromagnetic field. Prerequisite: Physics 101A. Three hours lecture.

105. Electron Tube Circuits. (2) Characteristics of vacuum tubes, gas tubes, phototubes and transistors. Amplifiers, oscillators and rectifiers. Emphasis is on circuits useful in physics research. Prerequisite: Physics 101A. Two hours lecture.

110A. Analytical Mechanics. (3) Statics of particles and rigid bodies. Motion of a particle. Motion of a system of particles. Motion of a rigid body in a plane. Prerequisites: Physics 4A, Math. 119 (may be taken concurrently). Three hours lecture.

110B. Analytical Mechanics. (3) Motion in central force fields. Accelerated reference systems. Motion of a rigid body in three dimensions. Lagrange's equations. Hamilton's equations. Prerequisite: Physics 110A. Three hours lecture.

115. Modern Physics. (3) Semi-descriptive introduction to selected topics. Emphasis on crucial experiments. Michelson-Moreley experiment, Rutherford scattering, Bohr atom, wave-mechanical atom, atomic spectra, radioactivity, nuclear reactions, accelerators. Prequisites: Physics 4A, 4B, and 4C, Math. 3A, 3B, 4A, 4B. Three hours lecture.

116. Physics of Solids. (2) Crystal structure. Classical and free-electron theories of metals. Band theory of solids. Ferromagnetism. Superconductivity. Prerequisites: Physics 115, Math 119. Two hours lecture.

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*4A formerly 8; 4B formerly 9; 4C formerly 10.

120A. Atomic Physics. (3) Selected topics in modern atomic physics, including the magnetic, optical and electrical properties of atoms, X-rays, photons and X-ray spectra, relativity, wave-mechanics, the Schroedinger equation. Prerequisites: Physics 115, Math. 119. Three hours lecture.

120B. Nuclear Physics. (3) Isotopes. Natural and artificial radioactivity. Alpha, beta and gamma decay. Nuclear reactions. Nuclear structure and nuclear forces. Prerequisite: Physics 120A. Three hours lecture.

130A. Introduction to Mathematical Physics. (3) Multi-dimensional vectors with complex coordinates and matrices. Fourier series and associated orthonormal sets of function-vectors. Curvilinear coordinates. Prerequisite: Math. 102. Three hours lecture.

130B. Introduction to Mathematical Physics. (3) Laplace's equation. Spherical harmonics and Bessel functions. The calculus of variations with applications to dynamics. Complex variable theory and operational calculus. Prerequisite: Physics 130A. Three hours lecture.

140. Thermodynamics. (2) Laws of thermodynamics and the application of thermodynamics to pure substances and special systems. Two hours lecture.

150A. Advanced Laboratory. (1) Performance of experiments drawn from the various areas of physics. Three hours laboratory.

150B. Advanced Laboratory. (1) Continuation of Physics 150A. Three hours laboratory.

150C. Advanced Laboratory. (1) Continuation of Physics 150B. Three hours laboratory.

150D. Advanced Laboratory. (1) Continuation of Physics 150C. Three hours laboratory.

160. Methods of Research. (1) For students majoring in Physics. Work of a research or advanced laboratory nature which can be incorporated into a senior thesis.

170. Optics. (3) Brief review of geometrical optics. Waves. Interference and diffraction. Interferometry. Polarization. Light and matter. Quantum optics. Three hours lecture.

180A. Special Study in Physics. (2) Work in physics under the direction of a staff member. Emphasis is on the principles of quantum mechanics. Permission of the chairman of the department is necessary for admission. Two hours lecture.

180B. Special Study in Physics. (2) Continuation of Physics 180A. Two hours lecture.

POLITICAL SCIENCE

Chairman of the Department
Bernard L. Kronick, Ph.D.

Students who wish to major in Political Science, besides completing the other required courses of the Lower Division, must pass the courses in Political Science 1-2 with at least a grade of C.

The major program must include 24 units of upper division work in Political Science. Required courses include: Political Science 118A-118B, 157 and such other courses as the department may prescribe in the interest of a well-balanced and professionally adequate major. An average of C must be maintained in the courses of the major and at the end of the senior year each student must pass such comprehensive examinations as may be required by the department.

Political Science majors must also complete a six-unit course in either Economics, Psychology, or Sociology.

Any exceptions to this program must be authorized by the written permission of the Chairman of the Department.

Lower Division

1. Introduction to Government. (3) Fundamental concepts of political science. Theory and practice of government. The American political system.

2. Introduction to Government. (3) Contemporary political institutions and the great issues of politics. The governments of the principal foreign powers and of several smaller states.

20A-20B. American Institutions. (1-1) Yr. Fundamental principles underlying the American system of government. Methods and institutions of the American constitutional system.

Upper Division

118A-118B. History of Political Philosophy. (3-3) Yr. The metaphysical and ethical bases of the major political doctrines from antiquity to the present. Their relation to political development and to modern issues.

123. International Relations. (3) The state system. Basic elements. International law and organization. Interaction of domestic and international politics. Multiple foreign-policy aims. Controls and strategies examined through both historical and contemporary problems and policies.

128. The United States and World Affairs. (3) The tradition, resources, organization, conduct and control of American foreign policy. Civilian-military relations. Economic, political, military and diplomatic capabilities. Principle issues and problems.

142. GOVERNMENT IN NON-WESTERN SOCIETIES. (3) Imperialist legacy. Colonial revolt. Mutual influences of changing economies, social structure and political authority systems in selected areas of the Far East, Near and Middle East, and Africa.

149A-149B. COMPARATIVE POLITICAL SYSTEMS. (3-3) Yr. The social bases of political power and governmental structures in selected foreign countries. Functions, techniques, and institutions of political society in the British Commonwealth, continental Europe, Latin America and the Soviet sphere.

151A-151B. POWER AND LEADERSHIP IN AMERICAN DEMOCRACY. (3-3) Yr. Concepts of political influence, power and authority applied to leadership roles in the public sectors of American life. Emphasis on the interrelations of government and business.

152. POLITICAL PARTIES AND PRESSURE GROUPS. (3) The nature and operations of parties and of group, sectional and class interests. Their functions in local, state and national government.

155. INTRODUCTION TO LAW. (3) Origin, nature and functions of law. Main legal concepts and schools of jurisprudence. Major systems of law and justice. Their roles in human culture and society.

157. AMERICAN CONSTITUTIONAL LAW. (3) The Supreme Court in American life. The Agrarian, Laissez-Faire and Welfare Constitutions. Federal-state relations, economic regulation, civil liberties, presidential powers. What the Constitution means today.

161. STATE AND LOCAL GOVERNMENT. (3) Problems and processes of state politics and of municipal government. Intergovernmental relations. Issues of finance, housing, welfare, city planning, law enforcement, rapid transit, health and administrative competence.

181. GOVERNMENT AND ADMINISTRATION IN THE UNITED STATES. (3) Origins of public administration. Leadership and staff roles in the administrative process. Policy development and national administration. Public management in relation to the constitutional system and to private enterprise.

190. RESEARCH IN POLITICAL SCIENCE. (1) A course in research methods. The formulation of practicable problems. The nature of available evidence. Bibliography. Presentation of findings. Supervised work for the senior thesis.

191. CONFERENCE COURSE IN POLITICAL ANALYSIS. (3) Scope and method of political science and its relation to allied disciplines. A comprehensive view of the literature and role of political science. Extensive readings in the literature of contemporary research findings.

192A-192B. JUNIOR HONORS PROGRAM. (3-3) Yr. Intensive reading in the fields of government with tutorial supervision, seminar work and the preparation of reports .

193A-193B. SENIOR HONORS PROGRAM. (3-3) Yr. Intensive reading in the fields of government with tutorial supervision, seminar work and the preparation of reports .

PSYCHOLOGY

CHAIRMAN OF THE DEPARTMENT
RICHARD J. STANEK, PH.D.

Students who wish to make Psychology their major subject are required to complete, in addition to the general requirements for the Bachelor's degree, the courses in Psychology 1A and 1B. The major program must also include 24 hours of upper division work in Psychology. Within these 24 hours the student is required to take Psychology 103, Psychology 130, Psychology 190 and any one of the following courses: Psychology 110, Psychology 120, Psychology 135, or Psychology 155. An average grade of C must be maintained in the courses of the major and at the end of the senior year each student must pass such comprehensive examinations as may be required by the department.

Students who wish to make Psychology their minor subject must also complete Psychology 1A and 1B. The 12 hours of upper division work in Psychology required for a minor must include Psychology 103 and Psychology 130. These courses must be completed with an average grade of C.

1A-1B. GENERAL PSYCHOLOGY. (3-3) Yr. The study of man as a psychophysiological organism in terms of his perceptions, motivations, emotions, and adaptive behaviors. A general survey of the scope, methods and content of scientific psychology.

103. INTRODUCTION TO PSYCHOLOGICAL MEASUREMENT. (3) Application of statistical principles to psychological experimentation and research. Elementary statistical methods including frequency distributions, central tendencies, measures of variability, correlations, significance of measures, reliability and validity of tests.

105. PERSONALITY AND ADJUSTMENT. (3) An introduction to the psychology of personal and social adjustment. Personality patterns of the individual in various contexts, such as the family, the school, marriage, the adolescent years, social relations.

110. PSYCHOLOGY OF LEARNING. (3) An exploration of the methods, concepts and phenomena of learning. Theories and facts relating to the learning process with special consideration given to contemporary research in major areas of learning. Lectures and laboratory.

111. PHYSIOLOGICAL PSYCHOLOGY. (3) The physiological bases of behavior and experience in terms of neural, glandular and visceral processes. Special emphasis given to physiological accompaniments of perception, motivation, emotion, learning, thinking, and behavior acts. Lecture and laboratory.

113. INTRODUCTION TO EDUCATIONAL PSYCHOLOGY. (3) The psychological problem involved in education, with practical application of psychological principles. Special emphasis given to the nature of learning. (See Education 113.)

115. INTRODUCTION TO ABNORMAL PSYCHOLOGY. (3) A comprehensive treatment of the major forms of mental disorder with regard to their etiology, nature, development and control. Current theories of mental disease. The psychology of abnormal thinking.

117. PSYCHOLOGY OF ADOLESCENCE. (2) The important physical, mental and moral changes occurring during the adolescent period. Considers the development of the attitudes, interests and problems of the teen age. (See Education 117).

120. PSYCHOLOGY OF MOTIVATION. (3) A descriptive, developmental and theoretical study of the various motivational processes. The influence of motives on the initiation, regulation and direction of behavior. Theories of motivation. Lectures and laboratory.

130. EXPERIMENTAL PSYCHOLOGY. (3) The performance of classical experimentation in sensation, perception, memory, learning, thinking, motivation, emotion, the social process. Critical analysis of current investigation. Lectures and laboratory.

135. PSYCHOLOGY OF PERCEPTION. (3) A survey of the experimental literature on the perceptual processes. Problems of measurement. Demonstration of various perceptual phenomena. Lectures and laboratory.

140. HISTORY AND SYSTEMS OF PSYCHOLOGY. (3) The origin and development of modern psychology, its early growth in Europe and America. Analysis and evaluation of the major theoretical systems in psychology: structuralism, functionalism, behaviorism, Gestalt psychology, psychoanalysis.

150. SOCIAL PSYCHOLOGY. (3) Introduction to social psychology. Critical analysis of inter-relationships between culture and personality. The development and functioning of the self. Interpretation of socialization. Personality in cultures and sub-cultures. (See Sociology 150).

155. PSYCHOLOGY OF THOUGHT PROCESSES. (3) A survey of the experimental literature on the thought processes. Demonstrations in creative problem-solving. The nature of concept formation. Lectures and laboratory.

161. PSYCHOLOGY OF PERSONALITY. (3) A review of the basic concepts in personality theory and measurement. Critical examination of selected theories of personality. The experimental evidence concerning determinants of personality.

171. INDUSTRIAL PSYCHOLOGY. (3) The application of psychological principles to industrial settings with particular emphasis on social-psychological aspects of labor-management relations. The motivational factors in job satisfaction and performance.

190. RESEARCH IN PSYCHOLOGY. (1) Supervised work for the senior thesis.

SOCIAL SCIENCE

CONSULT DEPARTMENT CHAIRMAN OF AREA OF CONCENTRATION

Students who wish to make Social Science their major area must complete Sociology 1, Political Science 2, Psychology 1A, and Economics 1B with an average grade of at least C.

The major program must include not less than 30 units of upper division work in the Social Sciences and History. A minimum concentration of 18 units must be taken in one field, and the remainder in two other fields; at least six units must be taken in each of these areas. The selection must be approved by the chairman.

An average of C must be maintained in all courses of the major, and at the end of the senior year each student must be ready to pass a comprehensive final examination.

LOWER DIVISION COURSES

SOCIOLOGY 1. PRINCIPLES OF SOCIOLOGY. (For a complete description consult the Sociology section of the catalogue).

POLITICAL SCIENCE 2. INTRODUCTION TO GOVERNMENT. (For a complete description consult the Political Science section of the catalogue).

PSYCHOLOGY 1A. GENERAL PSYCHOLOGY. (For a complete description consult the Psychology section of the catalogue).

ECONOMICS 1B. PRINCIPLES OF ECONOMICS. (For a complete description consult the Economics section of the catalogue).

UPPER DIVISION COURSES

ECONOMICS 116. AMERICAN ECONOMIC HISTORY. (For a complete description consult the Economics section of the catalogue).

ECONOMICS 117. EUROPEAN ECONOMIC HISTORY. (For a complete description consult the Economics section of the catalogue).

ECONOMICS 150. LABOR PROBLEMS. (For a complete description consult the Economics section of the catalogue).

HISTORY. Any upper division course listed in the History section of the catalogue).

POLITICAL SCIENCE. Any upper division course listed in the Political Science section of the catalogue.

PSYCHOLOGY. Any upper division course listed in the Psychology section of the catalogue.

SOCIOLOGY. Any upper division course listed in the Sociology section of the catalogue.

SOCIAL SCIENCE 190. Supervised research in the preparation of the senior thesis.

SOCIOLOGY

CHAIRMAN OF THE DEPARTMENT
WITOLD KRASSOWSKI, M.S.

The scholastic policy of the Department aims at the study of Sociology by stressing the scientific aspects of the discipline rather than the melioristic or all-inclusive philosophical approaches.

Students who wish to make Sociology their major subject, besides completing the other generally required courses of the lower division, must pass courses in Sociology 1 and 2 with at least a grade of C.

The major program must include twenty-four units of upper-division work in Sociology or, depending on the academic or professional orientation of the student, other recommended disciplines in the general area of social and behavioral sciences. The upper-division Sociology requirements are Sociology 100, 105, 125, and 150 or 161. At a time to be chosen by the student, a six unit course in either Economics, Political Science, or Psychology must be elected with the advice and approval of the Chairman of the Department. The student must maintain at least an average grade of C in the courses of the major and, at the end of the senior year, must pass a comprehensive final examination.

1. PRINCIPLES OF SOCIOLOGY. (3) I. Sociology and the Social Sciences. Critical and comprehensive survey of the basic elements of sociological analysis: social organization, culture, socialization stratification, etc. Introduction to the study of society, social processes, and social institutions.

2. PRINCIPLES OF SOCIOLOGY. (3) II. A comprehensive analysis of the specialized areas of sociological inquiry: the social problems in America. The costs and casualties in an acquisitive society.

Group 1: Social Theory and Methods

100. Principles of Statistical Method. (3) Techniques of elementary statistical analysis. The nature of the data, the logic of statistical induction, and the inherent limitations. Averages, variations, elementary ideas of index numbers, simple linear correlation, and elementary time series analysis.

105. Social Science Research Methods. (2) I. Methodological problems and technical procedures involved in the selection, definition, and limitation of research problems. Selection, compilation, description, classification, and analysis of data.

125. Contemporary Sociological Theory. (3) II. A critical analysis of contemporary sociological theories. Inter-relationships between theory and research problems. Functions of theory, theory formation and the theories of the middle-range. Prerequisites: Sociology 1, 100, 105.

Group 2: Social Structures and Social Psychology

120. Large-Scale Organizations and Institutions. (3) Critical analysis of administrative, economic, and political organizations and their roles in complex societies. Bureaucracy, oligarchy, and the self-perpetuating leadership. Structures, functions, and dysfunctions and the issue of power in large-scale organizations.

126. Social Anthropology. (3) Comparative society. Critical analysis of the development of human society with emphasis on the growth of modern institutions out of primitive kinship, social, and territorial units.

129. The Process of Communication. (3) Communication as a socio-psychological and cultural process. Communication patterns in small groups, in bureaucracy. Organization, functions, and development of mass media. Comparison of communication systems, e.g., Soviet, West European, Latin.

132. Social Stratification. (3) Social classes in local communities and the nation. Inter-cultural comparisons of class structures. Occupational trends in heterogeneous societies and problems of occupational stratification. Prerequisite: Sociology 1 or consent of the instructor.

147. Sociology of Industry. (3) The social organization of work-plant society. Work groups and work relations in formal and informal organizational structures. Industrial conflict: union and management in an industrial society. Major problems of applied industrial sociology. Prerequisite: Sociology 1 or consent of the instructor.

150. Social Psychology. (3) Introduction to social psychology. Critical analysis of inter-relationships between culture and personality. The development and functioning of the self. Interpretation of socialization. Personality in total cultures and subcultures. Prerequisites: Sociology 1, Psychology 1, or consent of the instructor.

161. Small Groups. (3) Systematic study of the formation, structure, and functioning of groups. Analysis of group processes and group products from a variety of theoretical viewpoints. Implications of various research techniques. Prerequisite: Sociology 1 or consent of the instructor.

198. Thesis Research. (1) Supervised work for the senior thesis.

SPEECH AND DRAMA

Chairman of the Department
Robert F. Shea, M.A.

1. Fundamentals of Expression. (2) I or II. A course in oral communication stressing the practice in extemporaneous speaking. Organization and content are emphasized.

5. Voice and Diction. (2) II. Voice production and articulation for speech improvement. Basic speech science, phonetics, drills, reports, and lectures.

6. Discussion and Debate. (2) I. Problem solving by discussion, conference techniques, argumentation in debate. Practical application.

10. Acting I. (2) I. A study of the actor's resources, character and play analysis, and basic methods of acting. Alternate years.

11. Acting II. (2) II. Continuation of Acting I. Concentration on the development of personal style. Alternate years.

25. Dramatic Workshop. (1) Credit for participation in play productions in acting, stagecraft, subject to proper approval.

26. Debate Workshop. (1) Credit for participating in inter-collegiate debate meets, subject to proper approval.

103. Advanced Public Speaking. (2) II. Advanced study of the principles of public speaking, personal development, audience psychology, speech composition, special types of speaking situation. Alternate years.

105. Oral Interpretation. (2) II. Understanding thought and feeling in literature, communicating it to an audience. Analysis of forms of poetry, prose for oral reading. Alternate years. Prerequisite: Speech 103.

106. Debate Workshop. (1) Credit for participating in inter-collegiate debate meets, subject to proper approval.

120. Play Production. (3) I. Attention is given to principles and practice in designing, construction, painting, lighting, sound, make-up, and costuming. Alternate years.

125. Dramatic Workshop. (1) Credit for participation in productions in acting, stagecraft, subject to proper approval.

130. World Drama (Ancient). (3) I. A study of the principal dramatic forms, the development of dramatic art, and the great plays from Aeschylus to Ibsen. Alternate years.

131. World Drama (Modern). (3) II. A continuation of Speech 130, from the study of Ibsen to the present. Alternate years.

135. Playwriting. (2) II. The critical analysis of dramatic structure and techniques. Designed for the student interested in dramatic literature, play directing, or the writing of original plays. Alternate years. Prerequisites: Speech 130, 131, or 140, 141.

140. History of the Theatre I. (3) I. The development of the theatre from ancient Greece to the theatre of Elizabethan England. A history of the physical stage, performers, style and types of production. Alternate years.

141. History of the Theatre II. (3) II. A continuation of Speech 140. The development of the theatre from Elizabethan England to the present day. Alternate years.

TEACHER EDUCATION PROGRAM

Director

Arthur T. Phelps, Ed.D.

The University's Teacher Education Program includes the fifth or post-graduate year of courses for the California general secondary credential. Recipients of this credential are authorized to hold positions in the public high schools and junior colleges of the State.

Those who would qualify for the general secondary credential must fulfill the following general requirements:

1. Health Certificate. The candidate may be required to present a satisfactory certificate of health from the University physician or other approved physician.

2. Citizenship. The State Department of Education requires each applicant for a teaching credential to be a citizen of the United States or to have filed first papers.

3. Oath of Allegiance. The State Department of Education requires each applicant for a credential to take the oath of allegiance to the United States.

4. American Institutions. The State Department of Education requires the completion of a course in the Constitution of the United States.

5. Interview. Every applicant for a credential must hold a personal interview with members of the Committee on Teacher Education. Appointments for such interviews should be arranged at the office of the Director of Teacher Education.

6. Approval of Schedules. It is desirable that early in his academic career the prospective candidate for a credential consult the Director of Teacher Education for approval of his study program.

7. Admission to Graduate Standing. Prospective candidates for the general secondary credential must be admitted to the Graduate Division of the University. For this reason a formal application must be filed with the Director of the Graduate Division at least one month before the beginning of graduate residence. The application must be accompanied by the five dollar ($5.00) application fee. In addition the candidate must furnish transcripts of all high school, college and/or university work. The Graduate Office will issue a statement of the student's official status.

8. Admission to Candidacy. The Committee on Teacher Education will admit to the Teacher Education Program only those students who have maintained a grade-point average of at least 2.5 (C plus) for the work undertaken in the last two undergraduate years.

9. Application for Directed Teaching. Applicants for admission to Education 320A and 320B must apply to the Director of Teacher Education at least three months in advance of the semester. An applicant will not be permitted to enroll in Education 320A and 320B until he has completed one semester of residence under the supervision of the Department of Education.

The candidate for the general secondary credential must satisfy the following *specific* requirements:.

1. He must spend two graduate semesters at the University, during which he completes a minimum of thirty units of upper division and graduate work with a grade-point average not lower than 2.75 when 2 equals C. At least six of these units must be in the field of the teaching major or minor.

2. He must satisfy the State requirement of forty semester hours of general education with a minimum of six semester hours in each of the following four areas:

a. Science and mathematics,
b. Practical and fine arts,
c. Social studies,
d. Communicative arts.

3. He must complete the following twenty-four units in professional education, or other acceptable units:

Education 111.	Principles and Philosophy of Education	2 units
Education 112.	Secondary Education and the Curriculum	3 units
Education 113.	Introduction to Educational Psychology	3 units
Education 114.	Methods and Management	2 units
Education 116.	Audio-Visual Aids	2 units
Education 117.	Psychology or Adolescence	2 units
Education 120.	Introduction to Tests and Measurements	2 units
Education 126.	Principles and Practice of Guidance	2 units
Education 320A and 320B.	Directed Teaching	6 units

4. He must complete a teaching major and a teaching minor from at least two of the following fields:

English
Foreign Language
Life Sciences and General Science
Mathemaitcs
Physical Science and General Science
Social Studies
Speech (Minor only)

The teaching major consists of at least thirty-six semester units. The teaching minor consists of not less than twenty semester units in a department other than the teaching major. Members of the Department of Education will be pleased to assist students in making a wise selection of courses during their undergraduate years to insure an adequate background in preferred teaching fields.

The requirements for teaching majors apply to the general secondary credential only and will not ordinarily meet the requirements for the baccalaureate degree at the University of Santa Clara.

THEOLOGY

CHAIRMAN OF THE DEPARTMENT
REVEREND THEODORE J. MACKIN, S.J., S.T.D.

All Catholic students are obliged to participate in one course in theology for every semester they are in attendance — and as closely as possible to the curriculum sequence.

The University's curriculum in theology works most immediately and formally to attain the goal of Christian liberal education. It surveys the history of God's entry into observable human experience in the four-semester inductive study of the Old Testament, the New Testament and the history of Christianity. It orders the yield of that inductive study in its four final semesters of doctrinal synthesis.

2. FUNDAMENTAL THEOLOGY. (2) For freshmen without previous instruction in fundamental theology (apologetics). Nature and origin of religion, possibility and fact of revelation, authenticity, integrity and historical accuracy of the Gospels. Christ's claims. His Church, its structure and properties.

5. THE OLD TESTAMENT. (2) Beginning of the inductive study of the sources of Christian knowledge. The creation narrative in GENESIS: pre-history, patriarchal age, exodus, period of judges, kings, captivity and post-exile. Inductive search for prophetic and primitive evidence of Christ and New Law.

6. THE LIFE OF CHRIST. (2) Study of the life of Christ in its social-historical context, mainly in search of evidence in the Gospels for His nature, personal identity, and the purpose of His coming.

7. CHURCH HISTORY I. (2) Continued inductive study of the sources of Christian knowledge from the Acts of the Apostles, through the Christian writers, councils, creeds, theological disputes and developments up to the 11th century.

8. CHURCH HISTORY II. (2) Completion of the inductive study, continuing from the 11th century through the councils, etc., until the present.

107. EXISTENCE AND ESSENCE OF GOD: THE CREATION AND FALL. (2) Beginning of the doctrinal summary. Deductive study of the nature of faith. Existence and triune nature of God. His attributes. Creation of the universe and man. The sin of the parents of the human race.

108. CHRIST THE REDEEMER, REDEMPTION, GRACE. (2) The Incarnation, its nature and purpose. Nature of Christ's redemptive action, the place of Mary and the saints in this action. The nature of grace and man's concurrence. The perfection of grace in beatitude.

109. THE SACRAMENTS. (2) A study of all the sacraments except matrimony; their distinction, origin from Christ in the Church, essential and integrating elements, specific effects, and their use.

110. THE SACRAMENT OF MATRIMONY. (2) Elective for Seniors in their final semester. A study of Christian holiness in marriage as "medium" of the communication of grace. Its origin in God, its philosophical, theological and psychological properties, its purpose. Church law concerning marriage.

112. FAITH AND REASON. (2) Elective for Seniors in their final semester. In substance the same as Theology 2, but making use of the philosophical and historical background acquired by the student to penetrate more deeply into that substance.

COLLEGE OF BUSINESS ADMINISTRATION

Kenna Hall

COLLEGE OF BUSINESS ADMINISTRATION

CHARLES J. DIRKSEN, M.S.C., DEAN

ADVISORY BOARD

A board made up of the outstanding business leaders of the area acts in an advisory capacity for the College of Business Administration. The men who are serving in this position are: Ransom M. Cook, Charles S. Hobbs, Lowell Hunt, E. D. Maloney, Joseph McMicking, Peter J. Pasetta, Sidney L. Schwartz, S. L. Sibley, Leo Sievert, G. J. Ticoulat, Fred B. Whitman, and C. K. Wilson.

GENERAL STATEMENT

The College of Business Administration correlates the general educational objectives of the University with preparation in meeting the general and specific problems of industry.

HISTORY

The Board of Trustees established the College of Business Administration as an integral part of the University of Santa Clara in 1926. The four year curriculum was approved in 1927.

OBJECTIVE

The primary objective of the College of Business Administration is to supply professional training for those who are aiming at responsible positions in corporations, in their own business, in professional organizations serving business, or in state and federal government agencies.

NATIONAL AFFILIATION

The College of Business Administration is a member of the American Association of Collegiate Schools of Business.

ORGANIZATION OF THE COLLEGE

The College of Business Administration is divided into four divisions.

a. Undergraduate (4 years).
b. Graduate (Master of Business Administration).
c. Management Center.
d. Evening Extension.

UNDERGRADUATE ENTRANCE REQUIREMENTS

To qualify for freshman standing in the College of Business Administration, applicants must be graduates of an accredited high school and must present no less than sixteen units including the following:

English	3 units
Foreign language (one language)	2 units
Mathematics (algebra and geometry)	2 units
History	1 unit
Laboratory science	1 unit
Optional, advanced course in foreign language, mathematics, or laboratory science	1 unit

The remaining six units should be in solid college preparatory subjects rather than in the terminal and industrial courses. Additional courses in foreign language, mathematics, science, English and social studies are recommended.

The quality of the grades presented for entrance to the College of Business Administration must be above average. In view of the fact that a C average is required to remain in the College or to receive a degree, it is obvious that something better than a C average should be presented for entrance.

TRANSFER STUDENTS

Students who transfer to the College of Business Administration from other universities and junior colleges must complete during their first two years a minimum of 60 semester units in order to be given junior status. Included in these 60 units must be 6 units of Principles of Accounting and 6 units of Principles of Economics.

THE COMBINED BUSINESS AND LAW DEGREES

The combined degree, by which a student is allowed to substitute for his senior year in college the professional courses of the first year of Law School, is awarded only to students, a) who have done all their undergraduate college work at Santa Clara; b) who have maintained not less than a B average in the junior year in college; c) who complete with not less than a C average all the professional courses required in the first year of the Santa Clara College of Law and 4 units in Ethics approved by the Department of Philosophy; and d) who present not less than 128 units of work. Such students will be awarded the Bachelor's degree from the College of Business Administration after completing the first year of law.

The College of Business Administration does not award the combined degree to students who complete part of their undergraduate studies elsewhere, or who undertake their professional studies in Colleges not under the administration of the University.

METHOD OF INSTRUCTION

The method of instruction used in the College is one in which the students learns to do through doing. Cases, problems, and discussions supplement in large measure the lecture method which many other schools use.

The students must serve as active participants in class discussions. They must learn how to analyze business conditions and problems in a great variety of business situations. In so doing, they develop the ability and aptitude to evaluate a business problem and to decide on what course of action to follow.

UNDERGRADUATE DEGREE CURRICULA

The program leading to a degree of Bachelor of Science in Commerce consists of a total of 128 semester credit hours.

During the first two years of the course, extreme specialization is not the aim of the College. Rather, the student is trained in the fundamentals of English, mathematics, economics, accounting, speech and philosophy so that he will be well prepared to analyze and study the technical and special problems of business.

During the junior and senior years, the course is arranged so that every student will include courses in the major functions found in typical business firms. All students must take courses in finance, marketing, production, administrative practices, accounting, business policy, business law, and ethics.

Special and advanced work is given in economics, sales, industrial management, finance, accounting, advertising, labor relations, statistics, transportation, retailing and personnel management so that students may specialize in some specific area. As an example, majors in accounting may take the required work to prepare for the Certified Public Accounting examination.

The courses in ethics, philosophy and science provide the student with the broader fundamental principles necessary for dealing with the industrial system in its social relationships.

LOWER DIVISION

The first two years (freshman and sophomore) of college work are known as the lower division. The work of the lower division supplements that of the secondary schools in establishing a basis for a liberal education, and at the same time includes work introductory to the professional courses required at the University.

Certain courses taken in the high school are better adapted to prepare the student to undertake these lower division requirements. It is desirable that the student should so arrange his high school program as to complete required work in the field of foreign language, and that he should do sufficient work in mathematics and the natural sciences to enable him to undertake with success the courses required in college. In no case, however, does the satisfaction of lower division requirements in the high school reduce the amount of work required in the lower division or for the degree. The lower division work presupposes the prescribed entrance requirements, the successful completion of Subject "A" and the specified requirements in the respective courses.

Required Lower Division Courses

It should be noted that the recommended program for the first two years is the same for all students. Students must complete the course in Economics 1A and 1B with a minimum grade of a "C" average.

Freshman Year

8 units of Laboratory Science (Physics, Chemistry or Biology)
6 units of English
3 units of Military Science
3 units of Mathematics
3 units of Logic
1 unit of Political Science
3 units of Principles of Accounting
4 units of Theology*
2 units of Speech

Sophomore Year

6 units of Principles of Economics
3 units of Business Law
3 units of English
3 units of Military Science
6 units of History of Philosophy
6 units of Accounting or Management
4 units of Theology*

SUGGESTED CURRICULA

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Engl. 1A (Engl. Comp. and Lit.)	3	Engl. 1B (Engl. Comp. and Lit.)	3
Philosophy 9 (Logic)	3	Science (Chem., Physics or Biology)	4
Science (Chem., Physics or Biology)	4	B.A. 1A (Accounting)	3
B.A. 16 (Math. Analysis)	3	Mil. Sci. 2 (Basic Course)	1½
Mil. Sci. 1 (Basic Course)	1½	Theol. 6 (Life of Christ)	2
Theol. 5 (Old Testament)	2	Pol. Science 20A (American Inst.)	1
		Speech 1 (Fundamentals)	2
	16½		16½

*Only Catholic Students are required to take courses in Theology.

Sophomore Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Phil. 41A (History of Phil.)	3	Phil. 41B (History of Phil.)	3
Engl. 51 (Adv. Composition) or		Engl. 51 (Adv. Composition) or	
B.A. 18 (Business Law)	3	B.A. 18 (Business Law)	3
B.A. 1B (Accounting)	3	B.A. 21 (Intro. Cost Accounting)	
Econ. 1A (Prin. of Econ.)	3	or Elective	3
Mil. Sci. 3 (Basic Course)	1½	Econ. 1B (Prin. of Econ.)	3
Theol. 7 (Church History)	2	Mil. Sci. 4 (Basic Course)	1½
Pol. Sci. 20B	1	Theol. 8 (Church History)	2
	16½		15½

*Only Catholic Students are required to take courses in Theology.

UPPER DIVISION

Objectives

The primary objective of the upper division is to provide fundamental academic and professional training which will qualify graduates for the responsibilities of business. In other words, the College of Business Administration has as its primary goal the training of professional business men.

The secondary objective is to offer sufficient work in accounting, industrial management, sales and marketing, finance and economics so that students who desire to specialize may secure a sound foundation in these areas.

Requirements

Each student is required on entering the upper division to fulfill the following minimum requirements for graduation:

1. At least 60 units of upper division subjects must be completed after fulfilling the requirements of the lower division. Where lower division units are taken for upper division credit, both the quantity and quality of such work must conform to upper division standards.
2. Residence of at least one year immediately preceding graduation is required for the granting of any degree.
3. Electives. Subjects not taken as prescribed courses and not included in the students' major and minor sequences may be chosen as free electives to complete the 128 units required for graduation.
4. A minimum of 48 units in Business Administration and Economics must be completed during the junior and senior years by all students with the exception of those taking Advanced Military Science. Students in Advanced Military Science will be required to complete a minimum of 42 units in Business Administration and Economics.

Substitution for some of the total prescribed units may be allowed in special programs with permission of the Dean.

REQUIRED UPPER DIVISION COURSES

The course is arranged so that every student must include during his junior and senior years courses in the major functions found in typical business firms.

Objectives

Required upper division courses

I. Basic courses:

During the junior and senior years the students will be required to take the following basic courses —

3 units of Statistics
3 units of Finance
3 units of Marketing
3 units of Business Organization and Management
3 units of Economics of Enterprise
3 units of Business Policy
10 units of Philosophy
(Catholic students will be required to take a two-unit course in Theology each semester.)

II. Field of Emphasis:

Nine units beyond the introductory course in one field—

The following fields of emphasis are approved:

Accounting, banking and finance, industrial management and marketing (including retailing, sales management and advertising).

Students who do not wish to elect one of the above fields of emphasis may receive permission to:

1. Fulfill the economic major of the Department of Economics.
2. Elect special programs with the permission of the Dean (such programs may be in other divisions and departments such as Industrial Engineering and Social Science).

The above required subjects give the students the training necessary in preparing them to have a broad business outlook. With courses in marketing, industrial management, corporation finance, economics, and accounting in their required program, the students are prepared to grasp and cope with the complicated problems of management. They are not limited in their analyses of these varied problems to any one phase of the operations of a company, but are equipped to consider all aspects.

Suggested Program

Junior Year*

Fall Semester	*Units*	*Spring Semester*	*Units*
B.A. 155B (Business Law) or		B.A. 155B (Business Law) or	
B.A. 160 (Bus. Org. & Management)	3	B.A. 160 (Bus. Org. & Management)	3
B.A. 121 or 123 (Finance)	3	Phil. 112 (Metaphysics)	3
Phil. 109 (Theory of Knowledge)	3	Theol. 108 (The Redeemer & Grace)	2
B.A. 181 (Marketing)	3	B.A. or Econ. Electives	9
Theol. 107 (God and Creation)	2		
B.A. or Econ. Electives	3		
	17		17

Senior Year*

Fall Semester	*Units*	*Spring Semester*	*Units*
B.A. 159 (Econ. of Enterprise)	3	B.A. 162A (Business Policy)	3
Phil. 151 (Basic Ethics)	2	Phil. 152 (Social Ethics)	2
Theol. 109 (The Sacraments)	2	Theol. 110 (Matrimony)	2
B.A. or Econ.	9	B.A. or Econ. Electives	9
	16		16

*During the junior and senior years, all students must complete 9 units beyond the introductory courses in one field of emphasis. The following fields of emphasis are approved: Accounting, banking and finance, industrial management, marketing, (including retailing, sales management and advertising) and economics. Special programs, with the permission of the Dean, may be selected from other areas of the University.

UPPER DIVISION

Curricula in Areas of Emphasis

Every student must take a minimum of nine units beyond the introductory course in one field of emphasis. The following fields of emphasis are approved: accounting, finance, economics, marketing, and production management. Students who do not wish to elect one of the above fields may receive, in special cases, permission of the Dean to elect programs in other divisions such as mathematics, engineering, psychology, political science, and public administration.

The courses acceptable for specialization in accounting, finance, economics, marketing, production management, and law are listed below.

Curriculum in Accounting

(Acceptable subjects)

		Units
Bus. Admin. 130	Accounting Valuation	3
Bus. Admin. 131	Accounting: Proprietorship	3
Bus. Admin. 133	Cost Accounting	3
Bus. Admin. 134	Accounting Systems	3
Bus. Admin. 135	Analysis of Financial Statements	3
Bus. Admin. 136	Industrial Cost Analysis & Research	3
Bus. Admin. 132A	Accounting Problems	3
Bus. Admin. 132B	Accounting Problems	3
Bus. Admin. 137	Auditing	3
Bus. Admin. 138	Income Taxation	3

Curriculum in Finance

(Acceptable subjects)

Bus. Admin. 121	Corporation Finance	3
Bus. Admin. 123	Business Finance	3
Bus. Admin. 124	Investments & Investment Institutions	3
Bus. Admin. 125	Problems in Finance	3
Bus. Admin. 127	Problems in Public Finance	3
Bus. Admin. 128	Business Cycles	3
Bus. Admin. 130	Accounting Valuation	3

Bus. Admin. 135	Analysis of Financial Statements	3
Econ. 120	Public Finance & Taxation	3
Econ. 122	Money & Banking	3
Bus. Admin. 148	Principles of Insurance	3
Bus. Admin. 158	Government and Business	3

Curriculum in Economics		Units
(Acceptable subjects)		
Econ. 110	History of Economic Doctrines	3
Econ. 114	Economic Theory	3
Econ. 115	Aggregate Economics	3
Econ. 120	Public Finance & Taxation	3
Econ. 122	Money and Banking	3
Econ. 128	Business Cycles	3
Econ. 150	Labor Problems	3
Econ. 158	Government and Business	3
Econ. 180	International Trade	3
Econ. 116	American Economic History	3

Curriculum in Marketing		
(Acceptable subjects)		
Bus. Admin. 141	Principles of Insurance	3
Bus. Admin. 165	Retailing	3
Bus. Admin. 167	Purchasing	3
Bus. Admin. 171	Industrial Psychology	3
Bus. Admin. 181	Marketing Principles	3
Bus. Admin. 182	Marketing Problems	3
Bus. Admin. 183	Principles of Transportation	3
Bus. Admin. 184	Advertising	3
Bus. Admin. 185	Sales Management	3
Bus. Admin. 186	Salesmanship	3
Bus. Admin. 199A	Business Research	3
Bus. Admin. 199B	Business Research	3
Econ. 180	International Trade	3

Curriculum in Production Management		
(Acceptable subjects)		
Bus. Admin. 133	Cost Accounting	3
Bus. Admin. 136	Industrial Cost Analysis & Research	3
Bus. Admin. 163	Production Control	3

GRADUATION

To qualify for a Bachelor of Science in Commerce degree, the student must complete 128 semester units of college work, of which 64 units constitute the amount required in the lower division and at

least 60 of which are required in the upper division. To qualify for a degree a student must maintain at least a "C" average in the total required courses in Business, Law and Economics.

BUSINESS LECTURES

Throughout the year a series of lectures is given by business and public men of prominence on various problems of interest to the student body. These lectures bring the students into personal contact with representative business men and also enable them to become familiar with practical business problems.

INSPECTION TRIPS

The close connection of the University with the business and industrial establishments of the San Francisco metropolitan district enables the faculty to arrange various inspection trips to such industries as may be of interest. In this way students are given a practical insight into the business organization and workings of representative industries.

PLACEMENT

A placement office is maintained by the University to aid its students in securing promising business openings. Santa Clara students and graduates who do satisfactory work have had little difficulty in securing permanent positions. Part-time work for students also is handled by this office.

ORGANIZATIONS

Among the business societies for students on campus are a Business Administration Association, a student branch of The American Marketing Association, a chapter of the professional commerce fraternity Delta Sigma Pi, and a chapter of Beta Gamma Sigma, the national honor scholastic business fraternity. Other professional groups in Accounting, Advertising, Finance and Management have special student groups.

ACTIVITIES

Through the various campus organizations, a program of extracurricular activities is offered. These include athletics, debating, drama, journalism, intramural sports, music, social, and student government groups. Marked initiative and leadership are qualities expected of all Santa Clara men.

ADVISORY BOARD

Leading business executives serve on the Advisory Board of the College of Business Administration and meet regularly with the faculty for the purpose of advising and consulting with them on various business problems.

ASSOCIATES

The Associates of the College of Business Administration is an organization of selected business firms and individuals who have been chosen for identification with the school because of their interest in education and research. This group includes outstanding specialists in Accounting, Advertising, Finance, Management, Merchandising, Production, and Law.

MILITARY SCIENCE

Established in 1935, Santa Clara's Reserve Officers Training Corps is one of the oldest units in the Sixth Army Area. Satisfactory completion of the R.O.T.C. courses leads to a commission in the United States Army.

MASTER OF BUSINESS ADMINISTRATION PROGRAM

The Master of Business Administration program is designed primarily for men holding bachelor's degrees in Engineering, Business, Arts and Sciences and other areas who wish to point toward careers leading to executive positions in business.

To achieve this objective, M.B.A. candidates are offered an intensive course in the general areas of business management with sufficient concentration in technical fields to achieve a broad basis of understanding of the decision making and control processes.

ADMISSION REQUIREMENTS

Requirements for admission for the Master of Business Administration degree give recognition to the differences among candidates in educational background and experience.

The M.B.A. program can be built upon undergraduate work in Engineering, Business, Arts and Sciences, and other areas. A candidate for admission must have a bachelor's degree from an institution of accepted standing.

INDIVIDUAL PROGRAMS

Each program of study is planned on an individual basis, taking into consideration the objectives, needs and background of the student. All candidates for the M.B.A. degree must have a background in the fields of the core program of the American Association of Collegiate Schools of Business which includes the following areas: accounting, finance, economics, marketing, and statistics. Candidates without such courses in their undergraduate program will be required to undertake additional graduate units.

ACCEPTANCE FOR CANDIDACY

Permission to register in the College of Business Administration does not in itself imply that the student is accepted or will be accepted as a candidate for an advanced degree. Application for acceptance as

a candidate for an advanced degree must be initiated by the student after completing 12 units of graduate work.

If the student is not advanced to candidacy after completing 12 units of graduate work, he will be disqualified and will not be allowed to continue in the M.B.A. program.

DEGREE REQUIREMENTS

The M.B.A. will be granted after completion of a minimum of thirty or a maximum of forty graduate semester credit units of which two units must be earned by completing a Master's paper. In each course, the minimum passing grade is "C."

Residence requirements of the University will be met by completing twenty-four units of graduate work at Santa Clara within six calendar years.

SCHEDULING OF CLASSES AND COURSE WORK

Graduate courses will be offered during three semesters each year, starting in September, February, and June. An adequate selection of classes will be scheduled during the late afternoon and evening periods to allow graduate students employed during the day to complete the requirements for the degree of Master of Business Administration.

COURSE REQUIREMENTS

BASIC STUDIES:

This group of subjects will provide a background in the major fields of business and serve as a basis for advanced study. Students coming from a liberal arts or an engineering undergraduate major may find it necessary to take all of these courses. In each case, an evaluation of the candidate's transcript is made, and, the student will be informed which of these subjects will be required. These basic courses are offered as part of the graduate program and will satisfy undergraduate deficiences in the core requirements. Candidates are not precluded from enrolling in core and other graduate classes where circumstances merit such procedure.

BA 230. Accounting	(2 units)
BA 213. Economics	(2 units)
BA 200A. Statistics	(2 units)
BA 220. Financing	(2 units)
BA 280. Marketing	(2 units)

STUDY PROGRAM:

The candidates must complete all of the subjects listed in Group A. In the subjects listed in Group B, the candidates must complete one course in the areas of: finance, marketing, statistics, production and people. In the subjects listed in Group C, the candidates must complete

two additional courses beyond the courses listed in Group B, in one of the following areas: finance, accounting, marketing, statistics, or, economics.

Group A

Courses required of all students:

BA 260. Management and Organization (2 units).
BA 214. Economic Analysis of the Firm (2 units).
BA 235. Controls for Management I (2 units) (prerequisite, BA 231 and BA 260).
BA 299. Master's paper (prerequisite, candidacy).

Group B

A course in each of the following areas:

People: BA 205 or BA 268
Finance: BA 221 (prerequisite, BA 231)
Marketing: BA 281 or BA 282 (prerequisite, core)
Statistics: BA 200 (prerequisite, core)
Production or Policy: BA 262 or BA 290 (prerequisite, BA 260)
Accounting: BA 231 (prerequisite, core)

Group C

Two additional courses beyond the initial courses is one of the following areas:

Finance: BA 222, BA 236
Accounting: BA 232, BA 236
Marketing: BA 281 or BA 282, BA 284, BA 289
Statistics: BA 201, BA 202
Economics: BA 215, BA 216, BA 217

Group D

Electives to complete required units.

EVENING DIVISION

The College of Business Administration's Evening Division offers courses in the fields of accountancy, business law, sales, industrial management, finance, economics, and ethics.

Subsequent demand for specialized work will be the criterion for continuation and elaboration of the program.

High school graduates presenting the necessary units of admission to the University of Santa Clara will be admitted to the classes and students who do not meet the entrance requirements will be admitted on special examination or on their record of experience.

While college credit is granted for the majority of the classes offered, any student, to qualify for a degree, must complete all the entrance, residence and academic requirements as set down for the Day Division.

BUSINESS ADMINISTRATION

Description of Undergraduate Courses

1A. Principles of Accounting. (3) Collecting, recording, presenting and interpreting financial and operating data for use of managers, investors, creditors and governmental and other interested groups.

1B. Principles of Accounting. (3) Principles of partnership and corporation accounting. Analysis and interpretation of financial statements and reports. Prerequisite: 1A.

11. Introduction to Business. (2) A study of the structure and functioning of business enterprise with emphasis upon the principles and methods of business.

12. Job Analysis. (1) Includes an analysis of the various types and kinds of jobs, getting leads, enacting sample interviews, preparing individual brochures, etc.

16. Mathematical Concepts. (3) The basic concepts of mathematics as applied to business and economics are emphasized.

18. Business Law. (3) The nature and purpose of law and the historical development and its functions with emphasis on contracts, agency and sales, negotiable instruments, bailments and carriers, and property.

21. Introductory Cost Accounting. (3) Accounting theory and procedures applicable to cost determination and allocation in situations involving the manufacturing of goods. Emphasis upon job order and process cost techniques. Prerequisite 1B.

100. Principles of Statistics. (3) An introduction to the techniques of analyzing quantitative data with emphasis on basic statistical methods and analytical tools.

101. Statistical Analysis. (3) Application of the methods of basic least squares with particular preference to the problems of multiple, partial, and curvilinear correlation. Prerequisite: 100.

102. Statistical Analysis. (3) The principles of statistical inference are considered together with the problems of small samples, tests of significance, statistical estimation, contingency tables, and analysis of variance and covariance. Prerequisite: 101.

120. Public Finance and Taxation. (3) An analysis of public expenditures, public revenues, and public debt with particular emphasis upon their economic effects.

121. Corporation Finance. (3) Financial organization. The instruments of enterprise finance. Promotion and sale of securities. Problems of financing growth and expansion. Financial readjustments. Prerequisite: 1B.

123. Business Finance. (3) A course concerned with the practices, procedures, and problems involved in acquiring and in effectively utilizing the funds needed by the enterprise.

124. Investments and Investment Institutions. (3) Nature of the money market. Institutions operating therein; and government control.

125. Problems in Finance. (3) The problems of financing business enterprise are studied through an analysis of cases depicting actual business situations in order to train the student to analyze the problem and decide upon the action to be taken.

127. Problems in Public Finance. A continuation of course 120. Attention is given to current problems in fiscal matters. Credit by arrangement.

128. Business Fluctuations. (3) A study of the nature and causes of instability in an industrial private enterprise economy followed by an appraisal of (1) theoretical explanations of why they occur, and (2) proposed remedies.

130. Accounting Valuation. (3) The theory and technique applied in the valuation of assets and liabilities in the preparation of balance sheets and profit and loss statements. Prerequisite: 1B.

131. Accounting; Proprietorship. (3) Problems arising from the existence of more than one proprietor in an enterprise as well as the technique and theory underlying the accounting for interests in the net worth of an enterprise. Prerequisite: 130.

132A. Accounting Problems. (3) Accounting theory and procedures involved in specialized situations. Bankruptcy, installment sales, public accounts, consolidations, etc. Prerequisite: 131.

132B. Accounting Problems. (3) a review course in the approach to and solution of types of accounting problems appearing in professional examinations. Prerequisite: 132A.

133. Cost Accounting. (3) Particular emphasis is on industrial concerns but application to trading concerns, both wholesale and retail, is considered. Prerequisite: 1B.

134. Accounting System. (3) The theoretical and practical problems involved in setting up accounting systems with special reference to the prompt preparation of reports for the use of management. Prerequisite: 131.

135. Analysis of Financial Statements. (3) Emphasis is placed upon statistical interpretation of the typical financial statements and interim reports prepared for the use of management. Prerequisite: 1B.

136. Industrial Cost Analysis. (3) Standard costs and budgetary techniques for cost control. Cost and profit analyses for deci-

sion making purposes, including direct costing, profit volume analysis, and break-even analysis. Prerequisite: 21.

137. AUDITING. (3) This course covers the techniques of external auditing which are based upon the purpose of an audit and upon the conventional standards to which these techniques should conform.

138. INCOME TAXATION I. (3) Federal income tax practice and theory applied to the determination of tax liability of the individual. Similarities and differences, when appropriate, are indicated for partnerships and corporations.

139. INCOME TAXATION II. (3) Federal income tax theory and practice applied to the determination of tax liability of corporations, partnerships, estates, trusts, and gifts.

141. BUDGETING. (3) A study of the preparation and the use of business budgets. Work in the course consists of the preparation of sales, production, materials, overhead, selling expense, and cash budgets.

143. MANAGERIAL ACCOUNTING. (3) The development of the accounting cycle and its application to manufacturing and merchandising organizations.

148. PRINCIPLES OF INSURANCE. (3) A survey course to acquaint the student with the general principles of insurance and their application to the various branches of the field.

150. LIFE INSURANCE. (3) Studies of the theoretical concepts of the business and personal uses of life insurance and annuities.

155A. BUSINESS LAW. (3) The nature and purpose of law and its functions with emphasis on contracts, agency and sales, negotiable instruments, bailments and carriers, and property.

155B. BUSINESS LAW. (3) Continuation of Business Law 155A with emphasis on partnerships, corporations, bankruptcy, real estate, insurance and suretyship.

158. GOVERNMENT AND BUSINESS. (3) Government regulation of business as exercised especially by the Federal authority.

159. ECONOMICS OF ENTERPRISE. (3) Cost, price and quantity relationships in the firm, the industry and the economy.

160. BUSINESS ORGANIZATION. (3) Principles of organization and operation, analysis of the interrelations and interdependence of departments and individuals.

162. BUSINESS POLICIES AND MANAGEMENT. (3) A study of the interrelationship and coordination of prior functional and managerial courses leading to the formulation and administration of policy. Comprehensive cases comprise the basic material.

163. PRODUCTION CONTROL. (3) The problem of the production of goods. Factors which aid modern productivity. Coordination of sales and manufacturing.

164. TIME STUDY AND MOTION ANALYSIS. (3) Measurement of labor. Operation analysis. Motion study. Process charts, laws of motion economy.

165. RETAILING. (3) A study of the organization and management of retail establishments.

166. PERSONNEL MANAGEMENT. (3) Labor maintenance and control, wage payment and wage incentives, inspection, and cost analysis are studied as aids in clarifying and solving management problems.

167. PURCHASING. (3) The procurement of materials, equipment and supplies in industrial, merchandising, governmental and institutional organizations are discussed.

168. ADMINISTRATIVE PRACTICES. (3) A study of cases on human relations in business. The objective of the course is to increase each individual's ability to work effectively with others.

171. INDUSTRIAL PSYCHOLOGY. (3) Psychological principles applied to industrial and business settings with particular emphasis on social-psychological aspects of labor management relations and the motivational factors of job satisfaction and performance.

181. PRINCIPLES OF MARKETING. (3) The nature and importance of marketing. Nature of producer and consumer. Extent of and forces behind markets. Trends in present marketing methods and policies.

182. MARKETING PROBLEMS. (3) The philosophy and technique of the scientific method applied to marketing problems. Prerequisite: 181.

183. PRINCIPLES OF TRANSPORTATION. (3) An economic analysis of the important forms of commercial transportation in the United States. The particular problems of rail, water, motor, air, and pipe line transportation are considered.

184. ADVERTISING. (3) Fundamental principles. An analysis of the important psychological factors in advertising. Prerequisite: 181.

185. SALESMANAGEMENT. (3) Product planning. Policy formulation. Personnel selection and management. Control of sales operations.

186. SALESMANSHIP. (3) Developing of the sales plan. Securing prospects. Effective presentations.

199A. BUSINESS RESEARCH AND ANALYSIS. (3) A study of the research procedure and its application to business problems. Cases extensively used.

199B. BUSINESS RESEARCH AND ANALYSIS. (3) Application of the research procedure by a student to a problem of his choice. Individual effort and consultation dominate.

Description of Graduate Courses

200. Statistics - Principles. (2) Statistical methods used in business. Frequency distribution analysis. Time series analysis. Simple correlation. Index numbers.

201. Statistics for Management. (2) The use of statistics and the results of statistical methods in the analysis of business problems concerned with control, finance, marketing and production.

202. Statistics - Correlation. (2) Particular emphasis on the problems of multiple, partial, and curvilinear correlation.

203. Statistics - Inference. (2) Statistical inference with analysis of small samples, tests of significance and variance and co-variance.

205. The Sociology of Management. (2) Analysis of social roles and relationships within the business structure. Formal and informal groups and organization in industry.

213. Principles of Economics. (2) An introduction to basic economic principles concerned with pricing and the level of output.

214. Economic Analysis of the Firm. (2) An advanced analysis of the application of economic theory to the formulation of business policy and plans.

215. Analysis of Business Conditions. (2) An advanced analysis of basic economic theory designed to provide an understanding of the economic environment within which business operates and of the inter-action between business and the economy at large.

216. Economics of Government and Business. (2) Evaluation of government regulation of business as exercised by the various regulatory authorities.

217. Economic Policy. (2) Analysis of economic growth and its impact on the business community.

220. Financial Management Principles. (2) Financial organization. Problems of financing growth and expansion. Financial re-adjustments.

221. Financial Administration I. (2) The principal problems involved in financing business enterprises are examined, both from the viewpoint of business management and that of the economic system.

222. Financial Administration II. A continuation of Financial Administration I. Emphasis on problems involved in long-range financing operations and financial policies.

230. Managerial Accounting Principles. (2) Analysis of accounting techniques.

231. ACCOUNTING FOR MANAGEMENT I. (2) Analysis, interpretation, and application of accounting techniques for managerial decision making.

232. ACCOUNTING FOR MANAGEMENT II. (2) An advanced course in the use of accounting data and techniques for managerial purposes.

235. CONTROLS FOR MANAGEMENT I. (2) Covers the concepts and application of controls throughout a business organization. Emphasis is placed on control philosophies and concepts and the working tools of control.

236. CONTROLS FOR MANAGEMENT II. (2) Continuation of Controls for Management I with emphasis on control applications.

260. MANAGEMENT AND ORGANIZATION. (2) The nature of administrative organization, planning, direction and control is considered; and the basic concepts applied to specific business situations.

262. MANAGEMENT OF PRODUCTION. (2) An analysis of production problems and the methods used in reaching decisions and recommending appropriate courses of action.

268. MANAGEMENT OF PEOPLE. (2) Problems and techniques basic to the management and development of personnel and the interpersonal and intergroup behavior of specific organization relationships.

280. MARKETING - PRINCIPLES. (2) Evaluation of principles and methods of distribution from the viewpoint of business management. Analysis of case studies.

281. MARKETING THEORY. (2) Critical treatment is given to the development of marketing concepts, marketing and public policy, and the economics of marketing.

282. MARKETING MANAGEMENT. (2) The major areas of marketing are examined from the viewpoint of measuring the total marketing effort.

284. ADVERTISING MANAGEMENT. (2) Analysis of co-ordination of advertising with other marketing activities.

289. MARKETING RESEARCH. (2) Marketing research principles and techniques. General and specific theoretical application to marketing problems.

290. MANAGEMENT POLICY. (2) Emphasis is placed on the techniques in developing major decisions, with respect to the objectives, policies, operations and structure of a business enterprise.

298. INDEPENDENT STUDY. (1-4) Individual research projects. (Consent of the Faculty must be obtained before enrollment for the course).

299. MASTER'S PAPER. (2) An independent investigation in some business area of specialization. Required of all candidates.

ECONOMICS

Undergraduate Courses

1A-1B. Principles of Economics. (3-3) The student is made acquainted with the general principles, terminology and methods of analysis essential to an understanding of economic processes and problems.

100. Principles of Statistical Method. (3) An introduction to the techniques of analyzing quantitative data with emphasis on basic statistical methods and analytical tools.

101. Statistical Analysis. (3) Application of the methods of basic least squares with particular reference to the problems of multiple, partial, and curvilinear correlation. Prerequisite: Econ. 100.

102. Statistical Analysis. (3) The principles of statistical inference are considered together with the problems of small samples, tests of significance, statistical estimation, contingency tables, and analysis of variance, and co-variance. Prerequisite: Econ. 101.

110. History of Economic Doctrines. (3) The various types of theory are contrasted and compared and their relationship to the general economic and social history of the period indicated.

114. Economic Theory. (3) An analysis of cost and price relationships in the individual firm and in the industry of which it is a part. The three special cases of pure competition, monopolistic competition, and monopoly will be discussed.

115. Aggregate Economics (National Income). (3) An analysis of the level of national output and its determinants.

116. American Economic History. (3) A study of the economic history of the United States, with special reference to problems arising from the factory system and large scale production.

117. European Economic History. (3) A study of the development of the economic aspects of civilization in medieval and modern times.

118. Economic Geography. (3) Includes the study of the physical aspects of the earth as a planet and the varied environments which it provides for the habitat of man.

120. Public Finance and Taxation. (3) An analysis of public expenditures, public revenues, and public debt with particular emphasis upon their economic effects on the economy.

121. Corporation Finance. (3) Financial organization. The instruments of enterprise finance. Promotion and sale of securities. Problems of financing growth and expansion. Financial readjustments. Prerequisite: B.A. 1B.

122. MONEY AND BANKING. (3) A theoretical, institutional, and historical approach to the study of money and banking, with particular emphasis upon the relationship between the monetary and banking system and the rest of the economy.

124. INVESTMENTS AND INVESTMENT INSTITUTIONS. (3) Nature of the money market, the institutions operating therein, and government control.

128. BUSINESS FLUCTUATIONS. (3) A study of the nature and causes of instability in an industrial private enterprise economy followed by an appraisal of (1) theoretical explanations of why they occur, and (2) proposed remedies.

150. LABOR PROBLEMS. (3) Lectures and class discussion on (1) the problems, security, wages and income, hours and work periods, sub-standard workers, industrial autocracy, and (2) attempts to solve them, by employees, by employers, by government.

158. GOVERNMENT AND BUSINESS. (3) Government regulation of business as exercised especially by the Federal authority.

180. INTERNATIONAL TRADE. (3) A study of the theories and operation of foreign exchange and its economic influence upon industry and trade.

190. RESEARCH TECHNIQUE. (1) Supervised work for the senior thesis.

GRADUATE COURSES

214A-214B. SEMINAR IN PRICE THEORY. (2-2) Micro-economics: A study of demand, price and distribution theory.

215. SEMINAR IN EMPLOYMENT THEORY. (2) Micro-economics: A study of the determinants of the level of output at an advanced level.

222. SEMINAR IN MONETARY AND BANKING THEORY. (2) An analysis of monetary and banking theory and policy.

EVENING DIVISION COURSES

The following courses which are offered at night do not lead to a degree and do not require definite college preparation.

Students who desire to work for a degree in Economics must fulfill University entrance requirements as well as degree requirements listed on page 138 or page 135, titled "Upper Division."

A certificate in Business Administration will be offered to those students who complete satisfactorily 36 units of required college work in the Evening Division at Santa Clara. The makeup of these units will depend upon the field of major emphasis selected but must include

courses in Introduction to Business, Principles of Economics, Marketing, Accounting, and Business Ethics.

1A. PRINCIPLES OF ACCOUNTING. (3) A study of the basic principles underlying modern accounting processes with particular emphasis upon their application to the technique of classifying and recording actual business transactions,

1B. PRINCIPLES OF ACCOUNTING. (3) A continuation of 1A. Special attention is given to the problems peculiar to the sole proprietorship, partnership and corporation. Elementary ideas on the problems of asset valuation are also discussed.

1C*. ACCOUNTING LABORATORY. (1) Accounting laboratory material related to Principles of Accounting 1A.

1D*. ACCOUNTING LABORATORY. (1) Accounting laboratory material related to Principles of Accounting 1B.

11. INTRODUCTION TO BUSINESS. (2) A study of the structure and functioning of business enterprises with emphasis upon the principles and methods of business.

100. PRINCIPLES OF STATISTICS. (3) An introduction to the techniques of analyzing quantitative data with emphasis on basic statistical methods and analytical tools.

100C. STATISTICS LABORATORY. (1) A laboratory workshop in which the material developed in Business Statistics 100 is applied to problems and business cases.

121. CORPORATION FINANCE. (3) Financial organization. The instruments of enterprise finance. Promotion and sale of securities. Problems of financing growth and expansion. Financial readjustments. Prerequisite: 1B.

124. INVESTMENTS AND INVESTMENT INSTITUTIONS. (3) Nature of the money market. Institutions operating therein, and government control.

125. PROBLEMS IN FINANCE. (3) A detailed analysis of specific problems in corporation finance. The background and needs of those enrolling determines the specific topics covered.

126. PERSONAL FINANCE. (3) An approach to the field of personal financial management with special emphasis on the use and control of credit including the rights of credit grantors and grantees.

130. ACCOUNTING VALUATION. (3) The theory and technique applied in the valuation of assets and liabilities in the preparation of balance sheets and profit and loss statements.

130C. ACCOUNTING LABORATORY. (1) Accounting laboratory material related to Accounting Valuation 130.

*Letters "C" and "D" are used for special workshop courses in the Evening Division.

131. ACCOUNTING: PROPRIETORSHIP. (3) Problems arising from the existence of more than one proprietor in an enterprise as well as the technique and theory underlying the accounting for interests in the net worth of an enterprise.

131C. ACCOUNTING LABORATORY. (1) Accounting laboratory material related to accounting Proprietorship 131.

132A. ACCOUNTING PROBLEMS. (3) Accounting theory and procedures involved in specialized situations. Bankruptcy, installment sales, public accounts, consolidations, etc.

132B. ACCOUNTING PROBLEMS. (3) Continuation of 132A with emphasis on parent and subsidiary accounting.

132C. ACCOUNTING LABORATORY. (1) Accounting laboratory material related to Accounting Problems 132A.

133A. COST ACCOUNTING. (3) Particular emphasis is on industrial concerns but application to trading concerns, both wholesale and retail are considered.

133B. COST ACCOUNTING. (3) Particular emphasis is on allocation of overhead, process costs, standard costs, and budgetary control.

133C. ACCOUNTING LABORATORY. (1) Accounting laboratory material related to Cost Accounting 133A.

133D. ACCOUNTING LABORATORY. (1) Accounting Laboratory material related to Cost Accounting 133B.

135. ANALYSIS OF FINANCIAL STATEMENTS. (3) Emphasis is placed upon statistical interpretation of the typical financial statements and interim reports prepared for the use of management.

137. AUDITING. (3) This course covers the techniques of external auditing which are based upon the purpose of an audit and upon the conventional standards to which these techniques should conform.

138. INCOME TAXATION. (3) Federal income tax practice and theory applied to the determination of tax liability of the individual. Similarities and differences, when appropriate, are indicated for partnerships and corporations.

139A. ADVANCED ACCOUNTING. (3) Corporations. Funds and reserves. Profit and loss analysis. Statement of application of funds. Consignments. Installment sales.

139B. ADVANCED ACCOUNTING. (3) Continuation of 139A.

139C. ACCOUNTING LABORATORY. (1) Accounting laboratory material related to Advanced Accounting 139A.

139D. ACCOUNTING LABORATORY. (1) Accounting laboratory material related to Advanced Accounting 139B.

141. BUDGETING. (3) The preparation and the use of business budgets. Work in the course consists of the preparation of sales, production, materials, overhead, selling expense, and cash budgets.

142A-142B. FUND ACCOUNTING. (3-3) Yr. The theory and techniques underlying the record keeping and report preparation for governmental units and institutions such as hospitals, schools, foundations, etc.

148. PRINCIPLES OF INSURANCE. (3) A survey course to acquaint the student with the general principles of insurance and their application to the various branches of the field.

150. LIFE INSURANCE. (3) Studies of the theoretical concepts of the business and personal uses of life insurance and annuities.

155A. BUSINESS LAW. (3) The nature and purpose of law and its functions with emphasis on contracts, agency and sales, negotiable instruments, bailments and carriers, and property.

155B. BUSINESS LAW. (3) Continuation of Business Law 155A with emphasis on partnerships, corporations, bankruptcy, real estate, insurance and suretyship.

158A-158B. LABOR LAW. (3-3) Yr. This course emphasizes the administration of labor policy.

160. BUSINESS ORGANIZATION. (3) Principles of organization and operation, analysis of the interrelations and interdependence of departments and individuals.

161. OFFICE MANAGEMENT. (3) The course includes a discussion of the application of modern management principles and practices as applied in the organization, operation, and control of office functions.

161C. OFFICE MANAGEMENT LABORATORY. (1) A laboratory workshop in which the material developed in Office Management 161 is applied to problems and business cases.

162. BUSINESS POLICIES AND MANAGEMENT. (3) A study of the interrelationship and coordination of prior functional and managerial courses leading to the formulation and administration of policy. Comprehensive cases comprise the basic material.

162C. BUSINESS POLICIES AND MANAGEMENT LABORATORY. (1) A workshop using material related to Business Policies 162.

163. PRODUCTION CONTROL. (3) The problem of the production of goods. Factors which aid modern productivity. Coordination of sales and manufacturing.

163C. PRODUCTION CONTROL LABORATORY. (1) A laboratory workshop in which the material development in Production Control 163 is applied to problems and business cases.

166. PERSONNEL MANAGEMENT. (3) Labor maintenance and control, wage payment and wage incentives, inspection, and cost analysis are studied as aids in clarifying and solving management problems.

167. PURCHASING. (3) The procurement of materials, equipment and supplies in industrial, merchandising, governmental and institutional organizations are discussed.

167C. PURCHASING LABORATORY. (1) A workshop using material related to Purchasing 167.

168. ADMINISTRATIVE PRACTICES. (3) A study of cases on human relations in business. The objective of the course is to increase each individual's ability to work effectively with others.

181. PRINCIPLES OF MARKETING. (3) The nature and importance of marketing; nature of producer and consumer; extent of and forces behind market; trends in present marketing methods and policies.

181C. MARKETING LABORATORY. (1) A laboratory workshop in which the material developed in Marketing 181 is applied to problems and business cases.

182. MARKETING PROBLEMS. (3) The philosophy and technique of the scientific method applied to marketing problems.

182C. MARKETING LABORATORY. (1) A workshop using material related to Marketing 182.

183. PRINCIPLES OF TRANSPORTATION. (3) An economic analysis of the important forms of commercial transportation in the United States. The particular problems of rail, water, motor, air and pipe line transportation are considered.

185. SALES MANAGEMENT. (3) Product planning. Policy formulation. Personnel selection and management. Control of sales operations.

186. SALESMANSHIP. (3) Developing of the sales plant. Securing prospects. Effective presentations.

187. INTRODUCTION TO TRAFFIC MANAGEMENT. (3) This is a fundamental course in freight classification, freight movement and routing, handling and storage, and shipping papers, based on practical experience with many constructive transport suggestions.

188. TRAFFIC MANAGEMENT: FREIGHT CLASSIFICATION AND TARIFFS. (3) Types of freight tariffs. Manner of publication. How to find rates between points. Principles governing the interpretation of all freight tariffs. Introduction to truck rates.

189. TRAFFIC MANAGEMENT: FREIGHT RATES. (3) Studies in the use of tariffs governing the shipment of carload and less than carload freight. Pickup and delivery rates and rules. Study of tariffs and rates applying between California and other points in the West using both rail and truck tariffs.

190. TRAFFIC MANAGEMENT: MOTOR TRUCK RATES. (3) Types of trucking services. Interstate Commerce Commission and State regulation, obligations, rights, and privileges of highway carriers and their shippers. Analysis of rate decisions. Problems in the computation of freight charges on traffic. Freight rate structure for contract motor truck and radial highway common carriers.

199. BUSINESS RESEARCH AND ANALYSIS. (3) The scope and importance of Business and Sales analysis and planning. Types of research, collecting and analyzing data. Presenting and interpreting results.

ECONOMICS

1A. PRINCIPLES OF ECONOMICS. (3) The student is made acquainted with the general principles, terminology and methods of analysis essential to an understanding of economic processes and problems.

1B. PRINCIPLES OF ECONOMICS. (3) Continuation of Economics 1A.

100. PRINCIPLES OF STATISTICAL METHOD. (3) An introduction to the techniques of analyzing quantitative data with emphasis on basic statistical methods and analytical tools.

100C. LABORATORY. (1) A laboratory workshop in which the material developed in Business Statistics 100 is applied to problems and business cases.

120. PUBLIC FINANCE AND TAXATION. (3) An analysis of public expenditures. Public revenues, and public debt with particular emphasis upon their economic effects on the economy.

121. CORPORATION FINANCE. (3) Financial organization. The instruments of enterprise finance. Promotion and sale of securities. Problems of financing growth and expansion. Financial readjustments.

122. MONEY AND BANKING. (3) A theoretical, institutional, and historical approach to the study of money and banking, with particular emphasis upon the relationship between the monetary and banking system and the rest of the economy.

124. INVESTMENTS AND INVESTMENT INSTITUTIONS. (3) Nature of the money market. Institutions operating therein. Government control.

128. BUSINESS FLUCTUATIONS. (3) A study of the nature and causes of instability in an industrial private enterprise economy followed by an appraisal of (1) theoretical explanations of why they occur, and (2) proposed remedies.

128C. BUSINESS FLUCTUATIONS LABORATORY. (1) A laboratory workshop in which the material developed in Business Fluctuations 128 is applied to problems and business cases.

150. LABOR PROBLEMS. (3) Lectures and class discussion on (1) the problems: security, wages and income, hours and work periods,

sub-standard workers, industrial autocracy and (2) attempts to solve them: by employees, by employers, by government.

158. GOVERNMENT AND BUSINESS. (3) Government regulation of business as exercised especially by the Federal authority.

183. TRANSPORTATION. (3) An economic analysis of the principal forms of commercial transportation in the United States. The particular problems of rail, water, motor, air, and pipe line transportation are considered.

ENGINEERING

1. INDUSTRIAL ELECTRONICS. (2) The purpose of this course is to provide practicing electricians, technicians and plant engineers with a background in industrial electronics.

2. INDUSTRIAL ELECTRONICS. (2) A continuation of Industrial Electronics 1.

3. ADVANCED INDUSTRIAL ELECTRONICS. (2) Basic and advanced theory of electronic circuits as well as detail specific industrial electronic devices.

4. ADVANCED INDUSTRIAL ELECTRONICS. (2) A continuation of Advanced Industrial Electronics 3.

ENGLISH

1E. EFFECTIVE COMMUNICATION. (3) Everyday problems of English will be discussed in relation to informal and formal speech and writing.

2E. EFFECTIVE COMMUNICATION. (3) Continuation of 1E, with emphasis on the best current practice in business communications.

3E. EFFICIENT READING. (2) The purpose of this course is to improve reading ability by increasing speed, comprehension, and critical power.

PHILOSOPHY

16P. ETHICS: A SURVEY OF GENERAL AND APPLIED ETHICS. (3) This emphasizes the practical application of ethical principles to personal, social, domestic, political and business problems.

17P. PROBLEMS OF PHILOSOPHY. (2) A course designed to introduce the student to philosophy by discussion of some of the fundamental problems that have always been of interest to mankind.

20P. PHILOSOPHY OF BEING. (2) The problems of the one and the many, the structure of being, the transcendental order, the four causes, and God as the cause of being. The being and nature of God in so far as they are knowable by natural reason.

22P. PHILOSOPHICAL PSYCHOLOGY. (2) An analysis of the nature and operations of man so far as these natures and operations can be discovered by the use of philosophical principles and empirical observations.

COLLEGE OF ENGINEERING

Sullivan Engineering Center

COLLEGE OF ENGINEERING

Advisory Board

Donald I. Cone
Glenn B. Woodruff

The College of Engineering offers programs leading to the Bachelor's degree and the Master's degree in Civil, Electrical and Mechanical Engineering.

Fields of Engineering

Upon completion of an undergraduate program in engineering, a wide range of opportunities exists in the profession of engineering. This vista is becoming increasingly broad because of the rapid expansion of technology in today's society, and the influence of technology on many activities in business and industry. In addition, engineering has proven to be an excellent background for assignments which in themselves are not necessarily classified as professional engineering. As a result, there are many fields in which an engineering graduate's professional development may take place regardless of his branch of specialization as an undergraduate.

In general engineering practice, in business, industry, and all levels of government there is an unlimited variety of activities appealing to the varied interest of the individual—design, industrial research, development, technical administration, construction, sales and production, to list a few.

The choice of field of engineering specialization need not be made until the middle of the junior year at Santa Clara. During the first two years of engineering, a student is expected to further investigate the fields of engineering so that his choice of a major is made on increased evidence he may accumulate in his reading, his visits to plants and engineering projects, his talks with people who have had experience in the various fields and, in general, a greater knowledge of the variety of opportunities open to engineers.

Civil Engineering relates to works in connection with transportation, such as highways and traffic, railways and canals; to structural works, such as bridges, buildings, dams, piers and many other structures constructed of wood, steel or reinforced concrete; to sanitary works and works which have to do with water, such as the collection, purification and distribution of water for a municipal supply; the collection, treatment and disposal of sewage; the drainage of some lands and the irrigation of others. In all of these fields of work, technical knowledge is required for the execution of successful designs, and for proper operation and maintenance.

Electrical Engineering includes the design, construction, and operation of equipment for generation, transmission, and utilization of electrical energy. Electrical engineers are concerned with all phases of the electrical transmission of information such as radio, television and telephone. Data processing equipment and computers used by business, industry and government are included in their major area of interest. Much of the equipment used in maintaining our national security is powered and controlled by electric and electronic mechanisms.

Mechanical Engineering attracts those engineers who are interested in propulsion ranging from hydraulic jets and propellors to rockets; power generation ranging from solar heat engines to nuclear power plants; explosions of all types extending from the housed explosion in the internal combustion engine to free bomb-type explosion; heating, refrigeration and air conditioning ranging in application from human comfort to the cooling of vacuum tubes; structures subjected to motion extending from printing presses and calculators to guided missiles.

Mechanical engineers are concerned not only with the design of this variety of machines, products and equipment, but also with the design and operation of the factories, mills and plants in which manufacturing and processing take place.

Engineering at Santa Clara

Instruction in Engineering was begun in 1910 and the first degree was granted in 1914. Since its inception, Santa Clara has felt that the undergraduate program should primarily include that course work which is considered fundamental to all engineering with a minimum of specialization in the separate branches of engineering. The increasing number of engineers who are working in areas which cross the traditional engineering classifications, would make it appear that further integration will occur.

The Civil, Electrical and Mechanical Engineering degree programs at Santa Clara are accredited by the Engineering Council for Professional Development. This Council reflects the nationwide concensus of the type and quality of programs that will be of most benefit to the individual and the organizations with which he will be engaged.

Buildings and Facilities. The College of Engineering's laboratories are contained in three buildings in the Sullivan Engineering Center. The three units completed in 1960 and a projected lecture, seminar and office building, will house the entire College of Engineering

The Civil Engineering building includes laboratories for instruction and research in the properties and processing of materials, physical metallurgy, destructive and non-destructive testing, dynamics, solid mechanics, and structural design.

The Electrical Engineering building includes a computer facility which houses digital and analog computers, and laboratories for instruction and research in circuit synthesis, electronics, controls, electromechanical devices and high frequency studies.

The Mechanical Engineering building includes bench laboratories and a high-bay facility for experimentation in the areas of fluid mechanics, hydraulics, thermodynamics, heat and mass transfer, hydrodynamics, propulsion, combustion and power generation. Specific equipment includes a constant level tank and a flexible water distribution system for general experiments, a small wind tunnel, and dynamometer capacity from 7½ to 300 horsepower.

The Undergraduate Program

The three programs in Civil, Electrical and Mechanical Engineering are planned around a common core of courses which will provide:

1. A thorough preparation in the basic sciences of physics, chemistry and mathematics.

2. The general application of these sciences as developed in the engineering fundamentals: mechanics of solids and fluids, properties of materials, thermodynamics, electricity and magnetism.

3. Assistance in further developing the ability to communicate orally, or by written and pictorial presentations.

4. Study in the humanities, including the social sciences, theology and philosophy.

The professional subjects pertaining to the particular areas of Civil, Electrical and Mechanical Engineering are developed primarily in the upper division.

Admission

Freshman

To qualify for freshman standing in the College of Engineering applicants must be graduates of an accredited high school and must present no less than sixteen units including the following:

English	3	Trigonometry	½
Foreign Language (one language	2	History	1
Algebra	2	Chemistry	1
Geometry	1	Physics	1
		Unprescribed	4½

It is strongly recommended that the unprescribed units be in mathematics, languages, natural or social sciences. Applicants who offer a list of subjects not in accordance with the above will be admitted at the discretion of the Admissions Committee, based on their College Entrance Examination achievement and their high school record.

Entrance Examinations

All applicants for admission to the freshman class in engineering are required to take the following examinations:

The scholastic aptitude test.

Achievement tests in advanced mathematics, and any two of the following: English, Physics or Chemistry.

The entrance examinations are given by the College Entrance Examination Board and are offered at many locations throughout the world. Students living in the West should write to Educational Testing Service, Box 27896, Los Angeles 27, requesting the application form and information on examination dates and locations. Students living in the East should write Educational Testing Service, P. O. Box 592, Princeton, New Jersey.

Examination may be taken on the same or different days, but all tests should be completed by March of the senior year in high school. The Board should be requested at the time the tests are taken to send the scores to the University of Santa Clara.

It is recommended that a test application form and test information be obtained from the College Entrance Examination Board not later than October of the senior year in high school. The procedure for making application for admission to the University may be found on page 50. It is suggested that the application for admission to the University be submitted by April 1.

Freshman Orientation

In addition to the orientation lectures for all freshman students during the three days following freshman registration in the fall, the College of Engineering will present a series of orientation lectures during the first semester for freshmen enrolled in Engineering. The series will include discussions of the engineering profession, information about the various fields of engineering, suggestions on methods of increasing the learning experience, and expansion of the goals of the engineering program.

During the freshman year, engineering students should purchase a slide rule of the log log duplex decitrig type and acquire facility in its use. Every student must be prepared to take a written examination in the practical use of this slide rule by the end of the first semester.

R.O.T.C.

Unless excused for reasons of health or prior military service, all freshman and sophomore students are required to enroll in the Basic Course of the Reserve Officers Training Corps. Students following an engineering program of study who are also enrolled in the junior and senior year Advanced Course will usually require more than the normal four years in the University to obtain a baccalaureate degree.

Admission With Advanced Standing

A student transferring to Santa Clara to complete his engineering program must undertake all courses required for the degree for which he cannot present a substantial equivalent from his previous work. Equivalent units only are required for Theology and Military Science. Courses in Theology are required of Catholic students only during each semester of enrollment.

Students transferring from a two-year program which does not include C. E. 16, Mechanics-Dynamics, but who have earned 68 acceptable units, will normally be able to complete the degree program in two years. A specific program should be planned with the Chairman of the Department in the major field.

ACADEMIC INFORMATION

Student Classification

Class rank in engineering is based upon the number of units earned which are applicable to the engineering degree program. Freshman 0-33, Sophomore 34-66, Junior 67-101, Senior 102 and over.

Semester Schedules

The normal semester schedule is 18 units. No student may carry in excess of 19 units in a semester unless he has Honor Standing and the written permission of the Dean.

Liberal Electives

The Engineering program requires a minimum of 12 units of liberal elective credit in addition to English 1A and 1B, and Speech 1. Courses may be selected from the following areas:

English	History	Sociology
Political Science	Speech	Psychology
Economics	Language	Philosophy

Academic Requirements

Complete academic requirements for the University are shown elsewhere in this catalogue.

In summary they are:

1. A freshman who has a deficiency of seven grade points will be placed on probation.

2. All other students whose average in any semester falls below a 2.0 (C average) will be placed on probation.

3. A student is removed from academic probation when he earns a C average during the semester he is on probation.

4. A student who does not remove his probation is subject to suspension for a minimum of one semester.

5. A "C" average in all courses with an Engineering College number must be earned in order to be recommended for a degree. Students who have failed to earn this average will be required to repeat low achievement courses.

Honor Standing

Honor standing is granted by the Dean of Engineering each semester to those students who maintain a high scholastic achievement. Students with Honor Standing are normally allowed greater freedom in course selection and the amount of work they can undertake in a semester.

Graduation Honors are awarded by the University based on the work of the undergraduate program.

Normal Time Requirements

The average student will be able to complete a degree program in eight semesters. Those students who are deficient in mathematics, or who must assume part-time off campus jobs, or who add additional programs to the engineering program will require nine or ten semesters.

Requirements for Graduation

The curricula in Engineering require 135 units for graduation. Residence of at least one year immediately preceding graduation is required for the undergraduate degree.

Senior Thesis

The senior thesis provides a student with the opportunity to carry out an original investigation in an orderly fashion, the momentum of progress being supplied primarily by the student's enthusiasm, interest and effort. The project is scheduled throughout the senior year and must be submitted before the student is admitted to his final examinations.

It is felt that a good undergraduate thesis:

1. Should involve an element of originality. It should be an investigation on the frontier of the student's knowledge.

2. Should require an element of design, an element of equipment assembly and utilization of instrumentation and a test program.

3. Should include successful evaluation of results utilizing sound test techniques and application of fundamentals of engineering. It is desirable that the evaluation require an extension of previous information to cope with the thesis project.

The Department Chairman appoints a thesis advisor. The advisor will approve the thesis subject and method of approach, the outline of the thesis project, the initial drafts and final copy of the thesis as the project develops.

UNDERGRADUATE PROGRAM ARRANGEMENT

Freshman

Fall Semester	*R*	*L*	*U*	*Spring Semester*	*R*	*L*	*U*
Theol. 5 (Old Testament)	2		½	Theol. 6 (Life of Christ)	2		½
Mil. Sci. 1 (Basic Course)	2	1	1½	Mil. Sci. 2 (Basic Course)	2	1	1½
Math. 3A (Anal. Geom. & Calculus)	3		3	Math. 3B (Anal. Geom. & Calculus)	3		3
Engl. 1A (Comp. & Lit.)	3		3	Engl. 1B (Comp. & Lit.)	3		3
Liberal Elective			3	Liberal Elective			3
Speech 1 (Fundamentals)			2	Phys. 4A (General Physics)	3	3	4
M.E. 3 (Engr. Graphics) or	1	6	3	M.E. 3 (Engr. Graphics) or	1	6	3
M.E. 10 (Materials & Processes)	2	3	3	M.E. 10 (Materials & Processes) or	2	3	3
				C.E. 6 (Surveying)	2	3	3
			16				18

Sophomore

Fall Semester	*R*	*L*	*U*	*Spring Semester*	*R*	*L*	*U*
Theol. 7 (Church History I)	2		½	Theol. 8 (Church History II)	2		½
Mil. Sci. 3 (Basic Course)	2	1	1½	Mil. Sci. 4 (Basic Course)	2	1	1½
Math. 4A (Calculus)	3		3	Math. 4B (Calculus)	3		3
Phys. 4B (General Physics)	3	3	4	Phys. 4C (General Physics)	3	3	4
Chem. 4A (General Chemistry)	3	3	4	Chem. 4B (Solid State Chemistry)	3		3
C.E. 14 (Mechanics I-Statics)	2		2	C.E. 16 (Mechanics II-Dynamics)	3		3
Liberal Elective			3	Liberal Elective			3
			18				18

Junior

Fall Semester	*R*	*L*	*U*	*Spring Semester*	*R*	*L*	*U*
Theol. 107 (God & Creation)	2		½	Theol. 108 (The Redeemer and Grace)	2		½
Phil. 61 (Logic)	3		1½	Phil. 62 (Nature and Man)	3		1½
Math. 119 (Diff. Equations)	3		3	E.E. 136 (Electronics)	3	3	4
C.E. 116 (Mech. Materials)	3		3	M.E. 123 (Thermo-fluid Mech. II)	3		3
C.E. 166 (Materials Lab.)		3	1	M.E. 133 (Thermo-fluid Mech. Lab)		3	1
M.E. 121 (Thermo-fluid Mech. I)	3		3	Department Requirements*			8
M.E. 131 (Thermo-fluid Mech. Lab.)		3	1				
E.E. 135 (Elements of E.E.)	3	3	4				
			17				18

*CIVIL	*R*	*L*	*U*
C.E. 122 (Theory of Structures I)	3		3
C.E. 172 (Structural Design I)		6	2
Technical Electives			3
			8

*ELECTRICAL	*R*	*L*	*U*
E.E. 127 (Electro-mech. Systems)	3		3
E.E. 137 (Multimesh Networks)	3		3
E.E. 138 (Math. of Circuit Anal.)	2		2
			8

*MECHANICAL	*R*	*L*	*U*
M.E. 118 (Machine Design)	1	6	3
Technical Electives			5
			8

Senior

Fall Semester	*R*	*L*	*U*	*Spring Semester*	*R*	*L*	*U*
Theol. 109 (Sacraments)	2		½	Theol. 110 (Matrimony)	2		½
Phil. 63 (Know. & Reality)	3		1½	Phil. 64 (Morals)	3		1½
170A (Thesis)			1	170B (Thesis)			1
Dept. Requirements*			15	198 (Seminar)	1		1
				Department Requirements*			14
			18				18

*Civil Engineering

Fall Semester	*R*	*L*	*U*	*Spring Semester*	*R*	*L*	*U*
CE 110 (Hydraulics)	3		3	CE 124 (Reinf. Concrete Des.)	3		3
CE 123 (Theory of Structures) II	3		3	CE 131 (Sanitary Engr.)	2		2
CE 173 (Structural Design II)		6	2	CE 142 (Transp. Engr.)	2		2
CE 127 (Soil Mech. & Found. Design)	3		3	CE 143 (Municipal Engr.)	2		2
CE 176 (Soil Mech. Laboratory)		3	1	Technical Electives			5
Technical Electives			3				
			15				14

*Electrical Engineering

Fall Semester	*R*	*L*	*U*	*Spring Semester*	*R*	*L*	*U*
EE 139 (Int. Electronics)	3	3	4	EE 160 (Control Systems)	3		3
EE 152 (Mod. Net Synthesis)	3		3	EE 162 (Elect-Mech Lab II)		3	1
EE 153 (Electrical Fields)	3		3	ME 141 (Heat Transfer)	3		3
EE 161 (Elec-Mech Syst. Lab I)		3	1	Technical Electives			7
EE 163 (Elec Comp Programming)		3	1				
Technical Electives			3				
			15				14

*Mechanical Engineeering

Fall Semester	*R*	*L*	*U*	*Spring Semester*	*R*	*L*	*U*
ME 119 (Machine Design)	2	3	3	ME 141 (Heat Transfer)	3		3
ME 124 (Thermo-Fluids)	3	3	4	Technical Electives			11
ME 144 (Adv. Dynamics)	3		3				
Technical Electives			5				
			15				14

Technical Electives

CIVIL ENGINEERING	R	L	U
CE 78 (Geology)	2		2
CE 165 (Hydraulic Engineering)	3		3
Math 110A (Adv. Engr. Math)	3		3
CE 150 (Adv. Mech. of Materials)			3
ME 152 (Advanced Fluid Mechanics)			3

ELECTRICAL ENGINEERING	R	L	U
EE 128 (Advanced Elec Mech)	3		3
EE 140 (Advanced Electronics)	3	3	4
EE 164 (Power System Studies)	3		3
EE 165 (Power Networks)	2		2
EE 154 (Microwave Meas.)	2	3	3

MECHANICAL ENGINEERING	R	L	U
M.E. 120 (Machine Design)	3		3
M.E. 134 (Mech. Engr. Experimentation)		3	1
M.E. 144 (Adv. Mechanics)	3		3
M.E. 145 (Propulsion Systems)	3		3
M.E. 147 (Metallurgy)	1	3	2
M.E. 150 (Heat., Vent. & Air Conditioning)	3	3	4
M.E. 152 (Adv. Fluid Mech.)	3		3
Math 110 (Adv. Engr. Math)	3		3
Physics 115 (Modern Physics)	3		3
Physics 120A (Atomic Physics)	3		3
Physics 120B (Nuclear Physics)	3		3
B.A. 160 (Ind. Org. & Mgt.)	3		3
Econ. 150 (Labor Problems)	3		3

GRADUATE PROGRAM

The Master of Science Program is designed to increase the technical competence of engineers engaged in design, research or development. Candidates are offered a common interest program in mathematics, physics and engineering science. The remainder of each degree program is made up of elective sequences in the area of the candidate's specialization. The M. S. Degree is offered in Civil, Electrical and Mechanical Engineering.

Admission Requirements

A bachelor's degree in engineering, physics or mathematics normally is required for admission to the Master of Science Program.

Acceptance for Candidacy

Permission to register in the College of Engineering does not in itself imply that the student is accepted, or will be accepted, as a candidate for an advanced degree. Application as a candidate for an advanced degree must be initiated by the student after completing twelve units as a graduate student at Santa Clara. An oral examination covering the student's major area, civil, electrical or mechanical engineering, will be required. At least twelve units must be completed after admission to degree candidacy.

Tuition and Fees

A registration fee of $5.00 is charged for first entrance in the University. This is paid only once. All courses including thesis units will carry a $30.00 tuition fee per semester unit. Auditors will be charged the same fees. For comprehensive written examinations a fee of $10.00 will be charged for each examination.

Program of Studies

A graduate program advisor will be appointed for each degree candidate. A formal program of studies must be filed with the Dean of Engineering along with the application for degree candidacy.

Degree Requirements

The M.S. will be granted to degree candidates after completion of thirty semester credit units, of which six units may be earned by completing the Master's Thesis. Resident requirements of the University will be met by completing twenty-four units of the graduate program, at Santa Clara, within six calendar years.

DEPARTMENT REQUIREMENTS

Civil Engineering

The program in Civil Engineering emphasizes the field of Structural Engineering. The following courses must be taken by every candidate for the Master's Degree. Adjustment of this requirement may be made in special cases.

CE 206. Theory of Plates.

CE 207. Theory of Shells.

CE 211. Advanced Strength of Materials.

CE 215. Theory of Statically Indeterminate Structures.

CE 216. Advanced Theory of Structures.

CE 218. Dynamics of Structures.

Math 110A. Advanced Mathematics for Engineers.

Ten units of electives may be selected with department approval.

Electrical Engineering

The following courses must be taken in order to be eligible for the Master's degree in Electrical Engineering. Adjustment of this requirement may be made in special cases.

2 Advanced Mathematics Courses.

2 Advanced Physics Courses.

1 Graduate Course in Electromagnetic Fields.

1 Course in Modern Network Synthesis.

1 Course in Control Systems.

Ten units of electives, selected with the approval of the department, will allow concentration in the following areas of study: networks, controls or electronic circuits.

Mechanical Engineering

Candidates for the Master's Degree in Mechanical Engineering should concentrate in one of the three fields listed below. Students are expected to complete most of the courses listed in their field. Programs are to be filled out with additional courses in mathematics, science and engineering with departmental approval.

a) Design Curriculum

ME 205. Physical Properties from the Molecular Viewpoint.

ME 271. Nonlinear Oscillations.

CE 150. Advanced Mechanics of Materials.

CE 208. Theory of Plasticity.

CE 212. Experimental Stress Analysis.
CE 206. Theory of Plates.
CE 207. Theory of Shells.
CE 215. Theory of Statically Indeterminate Structures.
CE 218. Dynamics of Structures.
ME 144. Advanced Dynamics.

b) Controls and Systems Curriculum

ME 271. Nonlinear Oscillations.
ME 280. Operations Research.
Math 166. Numerical Analysis.
EE 231. Feedback Control Systems I.
EE 232. Feedback Control Systems II.
EE 241. Computers I.

c) Energy-Mass-Momentum Transfer Curriculum

ME 283. Nuclear Reactors.
ME 285. Gas Dynamics I.
ME 288. Combustion.
ME 289. Advanced Thermodynamics.
ME 291. Advanced Heat and Mass Transfer.
ME 292. Mathematical Hydrodynamics.
ME 293. Boundary Layer Theory.
ME 294. Advanced Propulsion Systems.
ME 295. Magneto-fluid Mechanics.
ME 141. Heat Transfer.
ME 145. Propulsion Systems.
ME 152. Advanced Fluid Mechanics.

CIVIL ENGINEERING

CE 6. Surveying. (3) Surveying instruments, their use, adjustment and care. Basic surveying operations. Methods of evaluation, plotting and adjusting of field data. Principles of topographic mapping. Two hours lecture, three hours field practice.

CE 14. Mechanics (Statics). (2) Fundamental principles of statics. Their application to typical problems in various fields of engineering. Prerequisite: Physics 4A.

CE 16. Mechanics (Dynamics). (3) Fundamental principles of kinematics and dynamics. Dynamics of a particle and dynamics of rigid bodies. Application to problems in engineering. Introduction to theory of vibrations. Prerequisite: CE 14.

CE 78. Geology. (2) A study of the origin of the earth, the materials and rocks comprising the earth's crust, and the forces and processes acting to shape and modify the landscape and topography.

Mineral and rock identification. The uses and applications of topographic and geologic maps. Two hours lecture. Laboratory as required. Prerequisite: Chemistry 4A and 4B.

CE 110. HYDRAULICS. (3) Application of fluid mechanics to engineering problems. Open channel flow; flow over weirs; spill ways flow in pipes and pipe networks; hydraulic machinery; hydrology. Prerequisite: ME 121.

CE 116. MECHANICS OF MATERIALS. (3) Mechanical properties of engineering materials. Analysis of stresses and deformations. Bars under axial load; torsion; beam bending theory; axial load and bending; Mohrs circle; columns. Prerequisite: CE 14.

CE 121. ENGINEERING ECONOMICS. (3) Definition of economics. Basic concepts. Business units. Money and money systems. Investments. Labor relations. The economics of collectivism. Engineering economy studies. Present worth. Capitalized cost. Depreciation. Engineering reports and budgets. Contracts and specifications.

CE 122. THEORY OF STRUCTURES I. (3) Fundamentals of structural analysis. Determinateness and stability. Analysis of stresses in statically determinate structures under stationary loads. Straight and curved beams. Roof and bridge trusses. Three-hinged arches. Influence lines for beams. Prerequisite: CE 116.

CE 123. THEORY OF STRUCTURES II (3) Influence lines for bridge trusses and simple arches. Analysis of deformations of structures. Introduction to statically indeterminate structures and the analysis of building frames using moment-distribution method. Prerequisite: CE 122.

CE 124. REINFORCED CONCRETE DESIGN. (3) Basic theory of reinforced concrete. Analysis and design of reinforced concrete structures, such as beams, one-way and two-way slabs, columns, footings, arches and frames. Introduction to elementary concepts of plastic theory and the theory of prestressed concrete. Concrete mixes and construction methods. Prerequisite: CE 123.

CE 127. SOIL MECHANICS AND FOUNDATION DESIGN. (3) A study of the origin, composition and characteristic properties of soils. Theoretical and experimental methods of analysis of the physical properties of soils. Design of earth structures. Principles of foundation design. Introduction to the design and analysis of various types of foundations. Prerequisite: CE 16.

CE 131. SANITARY ENGINEERING. (2) Engineering aspects of water supply, purification and disposal. Occurrence of water; collection, storage and distribution systems for surface and ground water

supplies. Hydraulics of sewers. Sewage treatment plants. Introduction to the chemical and biological processes in water purification and sewage treatment. Two hours lecture, laboratory as required. Prerequisite: CE 110.

CE 142. TRANSPORTATION ENGINEERING. (2) Principles of highway planning, economics, finance and design. Curves and earth work. Pavement design and construction. Airports. Introduction to railroad engineering. Design and construction of tunnels. Prerequisites: CE 6 and CE 127.

CE 143. MUNICIPAL ENGINEERING. (2) Principles of city and regional planning. Land use and zoning. Population estimation. Subdivisions. Transportation, traffic and sanitary engineering problems associated with city planning.

CE 165. HYDRAULIC ENGINEERING. (3) Hydrology, stream regulation, flood control, irrigation and drainage, reservoir design, hydroelectric power, dams, waterways and harbor structures. Design of hydraulic structures such as flumes, siphons, stilling basins, spillways, large pipelines.

CE 166. MECHANICAL PROPERTIES OF MATERIALS LABORATORY. (1) Experimental determination of the mechanical properties of engineering materials in accordance with A.S.T.M. Standards. Experimental verification of theory presented in Mechanics of Materials course.

CE 170A. THESIS. (1) The investigation of some engineering problem and the writing of an acceptable thesis under the guidance of an advisor. Prerequisite. Senior standing.

CE 170B. THESIS. (1) Continuation of CE 170A. Prerequisite: CE 170A.

CE 170C. THESIS. (1) Continuation of CE 170B. Prerequisite: CE 170B.

CE 172. STRUCTURAL DESIGN I. (2) Fundamentals of structural steel design. Tension members, beams, girders and columns. Riveted and welded connections. Detailing and shop practice. Floor systems and roof trusses. Industrial buildings. Prerequisite: to accompany CE 122.

CE 173. STRUCTURAL DESIGN II. (2) Fundamentals of timber design. Wooden trestles, towers, trusses. Steel bridge design. Truss and plate girder bridges. Highway and railroad bridges. Design of multi-story buildings. Prerequisite: to accompany CE 123.

CE 176. SOIL MECHANICS LABORATORY. (1) Laboratory practice in the examination and testing of the physical properties of soils. Three hours. Prerequisite: to accompany CE 126.

CE 198. SEMINAR. (1) Prerequisite: Senior standing.

CE 199. INDIVIDUAL STUDY. By special arrangement with the Chairman of the Department. Units: arranged.

CE 205. THEORY OF ELASTICITY. (2) Fundamentals of the classical theory of elasticity. Stress and strain in three dimensions. Plane stress and plane strain. Stress function. Problems in rectangular and and polar coordinates. Introduction to the use of complex variables. Analysis of stresses around holes, notches and in the vicinity of localized loads. Contact stresses. Torsion of non-circular shafts.

CE 206. THEORY OF PLATES. (2) Methods of analysis of rectangular plates under various loading and support conditions. Fourier series, energy methods and numerical finite difference methods. Analysis of circular plates.

CE 207. THEORY OF SHELLS. (2) Membrane theory of shells of revolution. Cylindrical shells, shell roofs and tanks. Stress function and numerical methods in shell analysis. Introduction to the general bending theory of shells of revolution.

CE 208. THEORY OF PLASTICITY. (2) Analysis of stresses and strains in materials loaded beyond the elastic limit. Perfectly plastic material. Bending of beams and torsion of shafts. Yield hinges, limit analysis, analysis of trusses and frames. Shake-down phenomena. Introduction to the mathematical theory of plasticity.

CE 211. ADVANCED STRENGTH OF MATERIALS. (2) Advanced topics in the beam bending theory: bending of beams with nonsymmetrical crossection, principal axes, and principal moments of inertia, shear center, torsion of thinwalled sections, bending and twisting of curved bars, beam on elastic, foundation, beam analysis using Fourier series, non-linear problems in beam bending.

CE 212. EXPERIMENTAL STRESS ANALYSIS. (2) Theory and practice of the photoelastic method for measuring stresses under static and dynamic loads. Moire screen method in photoelasticity. Introduction to three-dimensional photoelasticity. Electrical strain gages and rosettes, and their use in static and dynamic testing. Mechanical and optical strain gages.

CE 215. THEORY OF STATICALLY INTERDETERMINATE STRUCTURES. (2) Analysis of stresses and deformations in statically indeterminate frames, arches and trusses; exact analytical and iterative methods and their application to structural problems. Thermal stresses, and stresses due to shrinkage and creep of structural materials.

CE 217. THEORY OF ELASTIC STABILITY. (2) Stability analysis of elastic bars under axial, and combined axial and laterial loading. Various methods of stability analysis and their limitations. Stability of

frames, rings and arches. Stability of twisted bars and lateral stability of beams. Stability of plates. Introduction to stability of shells. Stability of structures in the inelastic range.

CE 218. DYNAMICS OF STRUCTURES. (2) Analysis of the behavior of structures under dynamic loads. Natural frequencies and modes of beams and shafts. Exact and approximate methods. Dynamics of frames. Analysis of the dynamic behavior of structures in the inelastic range. Theoretical aspects of earthquake analysis.

CE 220. ADVANCED THEORY OF STRUCTURES. (2) Theory of arches. Theory of suspension bridges. Influence lines for stresses and deformations in bridge structures of various types. Secondary stresses in structures.

CE 221. ADVANCED STRUCTURAL DESIGN I (CONCRETE). (2) Design of reinforced concrete arches. Principles of design of shell roofs and tanks. Theory and design of prestressed reinforced concrete structures.

CE 222. ADVANCED STRUCTURAL DESIGN II (STEEL). (2) Advanced topics in the design of bridges and building frames. Analysis and design practice of welded structures.

CE 223. ADVANCED MECHANICAL PROPERTIES OF MATERIALS. (2) Theory of Flow and Fracture of engineering materials. Mechanical properties of engineering materials at low and elevated temperatures. Effect of radiation on mechanical properties.

CE 224. ADVANCED MECHANICAL PROPERTIES OF MATERIALS LABORATORY (1) Laboratory investigations in creep, fatigue and impact. Non-destructive testing. Three hours laboratory. Prerequisite: to accompany CE 223.

ELECTRICAL ENGINEERING

EE 127. ELECTRO-MECHANICAL SYSTEMS. (3) Introduction to the principles of electro-mechanical energy conversion. Derivation of mathematical models of rotating and translating devices. Development of transfer functions of electro-mechanical devices. Prerequisite: EE 135.

EE 128. ADVANCED ELECTRIC MACHINES. (3) A study of machines particularly applicable to control systems. The analysis of metadyne characteristics, magnetic amplifiers, and translational electromechanical devices, is covered extensively. Prerequisite. EE 127.

EE 135. ELEMENTS OF ELECTRICAL ENGINEERING. (4) Fundamental engineering relationships applying to electric, magnetic, and dielectric circuits. Introduction to transformer theory and basic electric

machines. Three hours lecture, three hours laboratory. Prerequisite: Physics 9 and concurrent registration or prior completion of Math. 4A.

EE 136. INTRODUCTORY ELECTRONICS. (4) Elementary theory of vacuum gas tubes, and modern network analysis. Solid state devices. Applications to basic electronic circuits as used in communications and industrial systems. Three hours lecture, three hours laboratory. Prerequisites: EE 135 and Physics 4C.

EE 137. NETWORK ANALYSIS. (3) Principles of multimesh networks including unbalanced polyphase systems. Thorough analysis of these networks to include steady state, transient, and non-sinusoidal conditions. Network and transfer characteristics theorems. Three hours lecture. Prerequisite: EE 135.

EE 138. MATHEMATICS OF CIRCUIT ANALYSIS. (2) Introduction to the operational mathematics of linear system analysis including Fourier and Laplace integrals, convolution integral, and impulse functions. Signal flow graphs and block diagrams. Prerequisite: EE 135.

EE 139. INTERMEDIATE ELECTRONICS. (4) Electron ballistics, emission theory, and transistors. Extension of the study of electronic amplifiers to include wide band and radio frequency amplifiers, and the principles and applications of feedback. Polyphase rectifiers and regulated power supplies. Three hours lecture, three hours laboratory. Prerequisites: EE 136, EE 138.

EE 140. ADVANCED ELECTRONICS. (4) Continuation of EE 139 to develop features of oscillators, modulators, and detectors. Amplitude modulation, frequency modulation, and pulse modulation systems. Introduces ultra-high frequency techniques and related circuits. Three hours lecture, three hours laboratory. Prerequisite: EE 139.

EE 152. MODERN NETWORK SYNTHESIS. (3) Concepts of positive real functions. Synthesis techniques for two and four terminal networks. Prerequisites: EE 137 and 138.

EE. 153 FIELD THEORY. (3) Review of electrostatic and magnetostatic fields. Time-varying electromagnetic phenomena. Maxwell's equations in integral and differential forms. Poynting vector. Transmission, absorption, reflection, and refraction. Three hours lecture. Prerequisite: EE 137.

EE 154. MICRO-WAVE MEASUREMENTS AND TECHNIQUES. (3) Travelling waves and reflections in free space, transmission lines, and wave guides. Generation and detection of micro-wave frequencies. Power and impedence. Cavity resonators. Coupling. Antenna radiation pattern measurements: Two hours lecture. Three hours laboratory. Prerequisite: EE 153.

EE 160. AUTOMATIC FEEDBACK CONTROL SYSTEMS. (3) Analysis techniques of servomechanisms and feedback systems. Stability, frequency and time response. Nyquist, Bode, Nichols plots. Root locus. Compensation techniques. Prerequisite: EE 138.

EE 161. ELECTRO-MECHANICAL SYSTEMS LAB I. (1) Tests of electro-mechanical devices. Computer simulation of rotating equipment. Three hours laboratory. Prerequisite: EE 127.

EE 162. ELECTRO-MECHANICAL SYSTEMS LAB II. (1) To accompany EE 160. Breadboard tests of servomechanisms and feedback control systems. Analog computer simulation. Three hours laboratory. Prerequisite: EE 163.

EE163. ELECTRONIC COMPUTER PROGRAMMING. (1) Introduction to analog and digital computer programming. Programming on departmental computers. Combined seminar and laboratory. Three hours weekly. Prerequisites: EE 136 and Math 119.

EE 164. POWER SYSTEM STUDIES. (3) Study of the mechanical dynamics of electrical machinery as used in electric power networks. Examination of the equal-area criteria, swing curves and other methods of determining system stability under steady state and transient conditions. Three hours lecture. Prerequisites: EE 127 and EE 138.

EE 165. POWER NETWORKS. (2) Principles of symmetrical components and their application to faulted conditions on power network. Study of sequence representation of power networks, polyphase transformer connections, and generator impedances. Introduction to relaying methods of circuit protection. Two hours lecture. Prerequiste: EE 138.

EE 170A. THESIS. (1) Investigation of an approved Electrical Engineering problem and preparation of suitable thesis covering the investigation. Conferences as required. Prerequisite: Senior standing in Electrical Engineering.

EE 170B. THESIS. (1) Continuation of EE 170A. Prerequisite: EE 170A.

EE 170C. THESIS. (2) Combination of EE 170A and EE 170B. Prerequisite. Senior standing in Electrical Engineering.

EE 198. SEMINAR. (1) Prerequisite: Senior standing.

EE 199. INDIVIDUAL STUDY. By special arrangement with the Chairman of the Department Credit arranged.

EE 231. FEEDBACK CONTROL SYSTEMS I. (2) Synthesis of linear feedback control systems from closed-loop data. Introduction to statistical methods of analysis of feedback control systems. Prerequisite: EE 138 or equivalent.

EE 232. FEEDBACK CONTROL SYSTEMS II. (2) Sampled-data systems. Analysis of systems operating on discrete signals, applications of continuous system criterion to sampled-data systems. Prerequisite: EE 138 or equivalent.

EE 233. FEEDBACK CONTROL SYSTEMS III. (2) Seminar in modern system synthesis and analysis of sophisticated models. Prerequisites: EE 231 and EE 232.

EE 241. COMPUTER I. (2) Introduction to analog and digital computers, theory of computer design, problem set-up, and typical problems analyzed in computer laboratory.

EE 242. THEORY OF COMMUNICATION. (2) Introduction to information transmission, transmission through electronic networks, modulation and modulation systems, periodic sampling and pulse modulation, noise. Prerequisite: EE 138 or equivalent.

EE 243. MODERN NETWORK ANALYSIS. (2) Advanced topics in analysis of passive networks by operational techniques.

EE 244. LINEAR SYSTEM ANALYSIS. (2) Advanced topics in the mathematics of system analysis.

EE 246. NETWORK SYNTHESIS I (2) Advanced treatment of linear passive network theory with primary emphasis on synthesis aspects, application to design of networks; prescribed transfer and driving-point characteristics, coupling networks, minimum phase and non-minimum phase types, filters, with concern for ultimate response characteristics. Prerequisites: EE 138 and Math 150B or equivalent.

EE 247. NETWORK SYNTHESIS II. (2) Continuation of EE 246.

EE 248. NETWORK SYNTHESIS III. (2) Continuation of EE 247.

EE 250. ELECTRONIC CIRCUITS I (2) Study of pulse and switching circuits. Prerequisite: EE 139 or equivalent.

EE 251. ELECTRONIC CIRCUITS II. (2) Transistor electronic circuits, equivalent circuits usable in circuit analysis, use of load-line methods for analysis of common transistor applications. Prerequisite: EE 139 or equivalent.

EE 252. ELECTRONIC CIRCUITS III. (2) Wide band amplifier theory and applications. The use of network theory in analysis and design of wideband amplifiers of the low pass or band pass type. Prerequisites: EE 138 and EE 140 or equivalent.

EE 253. ELECTRONIC CIRCUITS IV. (2) Selected topics in electronic systems. Masers, parametric amplifiers, etc.

EE 254. ELECTRONIC CIRCUITS V. (2) Transistor circuits used in power amplifiers and high frequency applications. Prerequiste: EE 251.

EE 258. MICROWAVE CIRCUITS. (2) Review of electromagnetic theory fundamentals. Transmission lines. Matching. Waveguides. Waveguide and coaxial-line components. Antennas. Resonators. Microwave detectors, amplifiers, and oscillators. Klystrons, magnetrons, traveling wave tubes, masers. Microwave measurements.

EE 260. FIELDS I. (2) Equations of wave motion, electromagnetic waves, their propagation, interference, and diffraction in free space and conducting medium. Scalar and vector potentials. Radiation, energy, momentum, and radiation-pressure. Prerequisite: EE 153 or equivalent.

EE 263. INTRODUCTION TO MAGNETOIONIC THEORY. (2) Propagation of electromagnetic waves through ionized media. Effects of steady and varying magnetic fields. Energy absorption, refraction, and reflection. Elements of magneto hydrodynamics. Prerequisite: EE 260.

MECHANICAL ENGINEERING

ME 3. ENGINEERING GRAPHICS. (3) Principles of orthographic projection and descriptive geometry. Graphic analysis of lines, surface areas, and volumes. Data plotting and determination of elementary empirical equations. One hour lecture, six hours laboratory. Prerequisite: Math 3A concurrently.

ME 7. ORIENTATION. (0) Discussion of University academic life. History and description of Engineering and its various fields. A series of lectures.

ME 10. MATERIALS AND PROCESSES. (3) Description of physical properties of materials and methods of alteration. Evaluation of these properties by experimentation in heat treatment, casting, machining and welding. Two hours lecture, three hours laboratory.

ME 118. MACHINE DESIGN. (3) Mathematics, statics, dynamics, and strength of materials utilized in analytical and graphical analysis of basic machine linkages. One hour lecture and six hours computation. Prerequisite: CE 116.

ME 119. MACHINE DESIGN. (3) Continuation of ME 118 with extension of analysis to include entire machines. Two hours lecture, three hours of computation and analysis. Prerequisite: ME 118.

ME 120. MACHINE DESIGN. (3) Continuation of ME 119 with emphasis on synthesizing. Introduction of advanced methods of stress and deflection analysis. Two hours lecture, three hours of computation and analysis. Prerequisite: ME 119.

ME 121. THERMO-FLUID MECHANICS I. (3) Consideration of Newton's laws of motion, the laws of thermodynamics, and properties of matter with emphasis on the application of these concepts to fluid systems analysis. Three hours lecture. Prerequisite: CE 16.

ME 123. Thermo-fluid Mechanics II. (3) Continuation of ME 121 with emphasis on the concepts of the second law of thermodynamics, reversibility, and impulse-momentum in the analysis of heat pump and heat engine processes. Three hours lecture. Prerequisite: ME 121.

ME 124. Thermo-fluid Mechanics III. (4) Continuation of ME 123 with emphasis on mixtures of substances, compressible flow, and combustion. Three hours lecture, three hours laboratory. Prerequisite: ME 123.

ME 131. Thermo-fluid Mechanics Laboratory I. (1) Emphasis placed on dimensional analysis, correct utilization of instruments, data accuracy analysis, and interpretive analysis of results of tests on thermo-fluid systems. Three hours laboratory. Prerequisite: to be taken concurrently with ME 121.

ME 133. Thermo-fluid Mechanics Laboratory II. (1) Continuation of ME 131. Three hours laboratory. Prerequisite: To be taken concurrently with ME 123.

ME 134. Mechanical Engineering Experimentation. (1) Advanced application of the principles of thermo-fluid mechanics, dynamics and heat transfer to experimental systems. Three hours laboratory. Prerequisite: ME 133.

ME 141. Heat Transfer. (3) An introduction to the concepts of conduction, convection, and radiation heat transfer and application of these concepts to engineering problems. Three hours lecture. Prerequisite: ME 123.

ME 144. Advanced Mechanics. (3) Dynamics of a particle and a system of particles. Lagrangian equations. Applications to engineering problems including vibration and gyroscopic motion. Three hours lecture. Prerequisites: Math. 119, CE 16.

ME 145. Propulsion Systems. (3) Common parameters for evaluation of marine, terrestrial and space propulsion systems. Descriptions of types of propulsions systems. Introduction to thermo-fluid analysis of such systems. Three hours lecture. Prerequisite: ME 123.

ME 147. Physical Metallurgy. (2) Phase equilibria, fundamental structure of metals and alloys, functions of alloying elements in steel, grain size, grain growth, strain hardening, and heat treatment. Two hours lecture. Prerequisite: CE 116.

ME 150. Heating, Ventilating and Air Conditioning. (4) Psychrometry, cooling and heating load computations. Principles of refrigeration. Three hours lecture, three hours laboratory. Prerequisite: ME 141.

ME 152. ADVANCED FLUID MECHANICS. (3) Application of the principles of thermo-fluid mechanics to selected topics in boundary layer theory, compressible flow, aerodynamics lubrication, and fluid machinery. Three hours lecture. Prerequisite: ME 123 or concurrent registration.

ME 160. MANAGEMENT ENGINEERING. (3) Consideration of factors relating to plant, product, personnel and profit. Three hours lecture.

ME 170A. THESIS. (1) Investigation of some engineering problem and the writing of an acceptable thesis. Conferences as required. Prerequisite: Senior standing in Mechanical Engineering.

ME 170B. THESIS. (1) Continuation of ME 170A. Prerequisite: ME 170A.

ME 170C. THESIS. (2) Continuation of ME 170A. Prerequisite: ME 170A.

ME 198. SEMINAR. (1) Prerequisite: Senior standing.

ME 199. INDIVIDUAL STUDY. By special arrangement with the Chairman of the Department. Credit arranged.

ME 271. NONLINEAR OSCILLATIONS. (2) Oscillations of nonlinear mechanical and electrical systems. Phase plane, response curves, relaxation oscillations, stability considerations. Two hours lecture. Prerequisites: Math 119A and ME 144.

ME 273. STATISTICAL ANALYSIS IN ENGINEERING. (2) Combinatorial problems, random variables, distributions, mathematical expectation, descriptive statistics, sampling, statistical inference. Application to engineering problems. Prerequisite: Math 119 (Ordinary Differential Equations).

ME 275. PHYSICAL PROPERTIES FROM THE MOLECULAR VIEWPOINT. (2) Microscopic theories of deformation and fracture and electrical, thermal, and magnetic properties of materials. Two hours lecture. Prerequisite: Physics 115.

ME 280. OPERATIONS RESEARCH. (2) Application of mathematical models to industrial problems. Linear programming, queuing and game theory. Two hours lecture. Prerequisite: Math 119.

ME 283. NUCLEAR REACTORS. (2) Design, kinetics and control of nuclear reactors. Two hours lecture. Prerequisites: Physics 115 and Math 119.

ME 285. GAS DYNAMICS I. (2) Flow of compressible fluids including isentropic flow, variable area flow, effects of friction and heat transfer. Wave phenomena. Experimental techniques and measurements. Two hours lecture. Prerequisite: ME 123.

ME 286. Gas Dynamics II. (2) Two and three dimensional flow at subsonic and supersonic speeds. Method of characteristics for supersonic flow. Oblique shocks. Prerequisite: Gas Dynamics I.

ME 288. Combustion. (2) Theory of combustion processes. Reaction kinetics, flame propagation theories. Two hours lecture. Prerequisites: Math 119 and ME 123.

ME 289. Advanced Thermodynamics. (2) Thermodynamic functions. Thermodynamics of chemical equilibrium and chemical reactions. Statistical thermodynamics. Two hours lecture. Prerequisites: Math 119 and ME 123.

ME 291. Advanced Heat and Mass Transfer. (2) Advanced problems in heat and mass transfer with emphasis on convection and radiation processes. Two hours lecture. Prerequisite: ME 141.

ME 292. Mathematical Hydrodynamics. (2) Mathematical analysis of incompressible inviscid flow. Equations of motion, irrotational flow in two and three dimensions, vortex motion, free surface flows. Two hours lecture. Prerequisites: ME 123 and Math 150B.

ME 293. Boundary Layer Theory. (2) Flow of viscous fluids including turbulence and separation effects. Two hours lecture. Prerequisites: Math 110 and ME 123.

ME 294. Advanced Propulsion Systems. (2) Advanced topics in the analysis of propulsion systems with emphasis on recently conceived systems. Two hours lecture. Prerequisite: ME 145.

ME 295. Magneto-fluid Mechanics. (2) Flow of electrically conducting fluids under the influence of electrical, magnetic and mechanical forces. Two hours lecture. Prerequisites: (By arrangement).

COLLEGE OF LAW

Bergin Hall

BERGIN
HALL

COLLEGE OF LAW

LEO A. HUARD, B.A., LL.B., *Dean*

EDUCATIONAL POLICY, PURPOSE AND SCOPE

As an integral part of a Jesuit University, the College of Law aims to develop lawyers who are competent and ethical. To this end, a three-year, full-time curriculum is offered which is directed to a study of the processes by which the courts and other judicial bodies decide controversies, and a study of the legal rules and principles which guide them.

The College of Law aims to develop thorough training in the fundamental processes, principles and reasonings of English and American law with emphasis on modifications peculiar to the State of California. It strives to develop in its students a high moral regard for the law that they may better appreciate the great contribution that the legal profession can make to society.

The general method of instruction followed is the Case System in which the student is called upon to analyze and discuss selected cases from various jurisdictions. This system is often supplemented by lectures based upon the individual professor's experience. The constant effort is to challenge the student's mind as well as to guide him in his search for knowledge.

It is the conviction of those who are charged with the administration of the College of Law that the most effective teaching frequently is not teaching in any formal sense, nor is the intellect and the moral character developed by merely imparting information in formal school sessions. With these convictions in mind, the College of Law is committed to the policy of maintaining the greatest intimacy and contact between teacher and student during formal sessions of class and throughout the day. The faculty offices are located only a few steps from the library, and all of the full-time faculty members are required to hold themselves available for consultation with students throughout the day.

PRE-LEGAL PREPARATION

Beyond the requirements of entrance, no specified pre-legal course is demanded; however, since the emphasis in any legal education must continue to be upon the development of the ability to analyze and synthesize, and then to give clarity and conciseness to the expression of this ability, those undergraduate courses which advance this general development should be pursued. Any subject may be taught and studied from an analytical point of view, including those of the fine arts, so

that any sound program leading to an academic degree may be followed. However, there are certain subjects which undoubtedly lend themselves more to this growth than others: philosophy, logic, mathematics, the physical sciences, social sciences, to name but a few.

Of great importance to the success of a student in law is the ability to express his learning in clear, concise terms. Once a problem is analyzed, the process is futile without the ability to express those thoughts adequately in written and oral English. It is, therefore, recommended that all pre-legal students avail themselves of three years of college English, emphasizing expository and argumentative composition, both written and oral. Since all examinations in the College of Law and before the State Bar of California are written, this suggestion is most vital.

Finally, it is imperative that good study-habits be developed. Beyond the mere expenditure of time, there must be a planned, mature, self-scheduled and self-disciplined program of study. Those pre-legal students who are capable of tackling, organizing and successfully concluding a research problem on their own initiative will find the three-year study of law both stimulating and highly profitable.

LAW LIBRARY

The Law Library is located in Bergin Hall, a building devoted exclusively to the College of Law. The Law Library is the laboratory of the law student. It has been developed as the working library for the staff and students of the College of Law.

The rapidly growing collection contains all the required materials of the Association of American Law Schools. It consists of carefully selected materials in the fields of Anglo-American statutory, decisional, text book and periodical sources.

The text collection is classified and catalogued by author, subject and title entry. The Librarian issues a quarterly Library Bulletin to the faculty of the College of Law, reporting new additions in library literature, and library news of interest to faculty and students.

MOOT COURT

The College of Law maintains two practice court programs: the Trial Moot Court and the Appellate Moot Court. Both programs are conducted by student committees under general faculty supervision.

Trial Moot Court

Actual cases, both civil and criminal, are tried in an authentic trial court atmosphere. The student committee prepares the facts from reported cases, assigns witnesses and gives them their testimony. Third-

year law students, acting as attorneys for the parties, interview the witnesses in order to prepare their case for trial. All necessary pleadings and other papers are prepared and filed with the Court. Each case is then tried before a judge selected from among the members of the local Bench and Bar. The jury is composed of the students and their friends.

At trial, the student attorneys present the evidence, examine and cross-examine the witnesses and make their closing arguments. The jury deliberates and a verdict is rendered. The trial judge then holds a critique for the student attorneys and other participants.

Appellate Moot Court

This program is required of second-year students.

Again a student committee selects and prepares the record of the cases to be argued. The committee also assigns counsel for the various cases and directs the operation of the program. The Court consists of members of the local Bench and Bar. Occasionally, a member of the Law Faculty serves as a member of the Court.

A Law Faculty Committee selects the outstanding advocates in this program to represent the College of Law in the State and National Appellate Moot Court Competitions.

In order to facilitate student-faculty liaison in the operations of both Moot Court programs, a Faculty Moderator is assigned to each program by the Dean.

The Law Faculty believes that these programs best prepare the student for the actual practice of law at the trial and appellate levels.

THE STUDENT BAR ASSOCIATION

The Student Bar Association is the student-governing body of the College of Law. This organization includes all students in the College. The Student Bar Association is a charter member of the American Law Students Association sponsored by the American Bar Association. The purpose of the Association is to promote among the law students a consciousness of professional responsibility and to provide a medium for the promotion of student activities generally. The Student Bar Association is responsible for the delegation of tutors in the tutoring program and for the staffing of the Student Moot Court Committees.

TUTOR PROGRAM

Under the supervision of a Faculty Moderator, outstanding second and third-year students are selected to carry on a program of tutorship for first-year law students. This is a program in which the second and third-year students contribute their time, energy and experience, and in particular, their knowledge to the freshman law students. Upon arrival at the College of Law, the tutor selected contacts his group, con-

sisting of not more than four freshmen. He advises them that he is available at all times for assistance in the study of law. He indicates to them the methods of approach and application. The tutor gives his group an examination, corrects the papers, and advises the group accordingly. The results are then presented to the full-time faculty member in charge, who then discusses the problems, if any, with the individual freshman law student.

Group seminars are held weekly under the direction of the group leader. This is a voluntary program.

ADMISSION PROCEDURE

1. Admission to First Year

Admission to the College of Law is on a selective basis. The Committee on Admissions will consider carefully the qualifications of each applicant as to character, intellectual ability, the prospect for success in law studies and professional promise.

Applicants for admission to the professional curriculum of the College of Law, leading to the degree of Bachelor of Laws, must have completed at least three years of undergraduate study towards a baccalaureate degree in a university or college of approved standing. The applicant must have earned at least 90 semester or 135 quarter units of credit. Courses without intellectual content of substantial value are not regarded as acceptable.

The applicant must have obtained a grade point average of at least 2.50 on a 4-point scale for all work undertaken.

The applicant must have achieved a satisfactory score on the Law School Admission Test given by the Educational Testing Service. Inquiries concerning this test should be addressed to the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey, or to the Office of the Dean, College of Law, University of Santa Clara.

The applicant must submit with his application at least three letters of recommendation as to his character and integrity. Whenever possible, the references should include a member of the Bar.

Students beginning their professional work are admitted only in September.

2. Admission to Advanced Standing

Applicants who have completed one year of study in a three year program in a law school approved by the American Bar Association and which is a member of the Association of American Law Schools may be considered for admission to advanced standing with credit for not more than one year of study. The applicant's undergraduate record

must be such that he would have been permitted to enter the College of Law as a first year student. The work for which credit is sought must have been of superior quality. The Committee on Admissions will evaluate the applicant's record and determine the credit to be allowed towards graduation. The applicant must be eligible for readmission to the law school previously attended. No student will be admitted to advanced standing as a special student. The student who is admitted to advanced standing must complete his last two academic years in residence in the College of Law.

3. Combined Program

Students in the College of Arts and Sciences or in the College of Business Administration of the University of Santa Clara may enter into a course of study, the successful completion of which will enable them to apply credits from the first year of the College of Law towards the requirements for the appropriate Bachelor Degree. The combined program enables the student to obtain a college degree and a Bachelor of Laws degree in six years.

Those students who are interested in the combined program should consult with their respective Deans concerning the terms and conditions of the program.

4. Military Science

Candidates for a law degee who qualify for and are selected for the Advanced Course in Military Science may be commissioned on completion of the advanced program and be delayed from reporting on active duty for a maximum period of three years, to obtain a Bachelor of Laws degree and to take the bar examination given next after graduation in the State of their choice.

5. Auditors

Members of the Bench or Bar may be enrolled as auditors in specific subjects in the fields of their professional interests. Such persons pay the prescribed auditor's fee, but take no examinations and receive no academic credit for the work completed.

6. Admission Procedure

a) A student seeking admission to the College of Law should file an application with the Registrar of the University. The required application form may be obtained from the Registrar or the Office of the Dean. The application must be accompanied by a service fee in the amount of $5.00.

b) It is necessary that all applicants take the Law School Admission Test. Information as to the time and place of the test may be secured by writing to the Office of the Dean, College of Law or to the Office of the Registrar.

c) The application must be supported by official transcripts of the student's complete academic record at each institution previously attended. An applicant still pursuing his pre-legal studies should present transcripts of the work completed to date and the courses in which he is presently enrolled.

d) Upon notification that the application for admission has been approved, information will be forwarded as to the date of registration.

e) Upon notification of acceptance, it is necessary that a check or money order in the amount of $50.00 be forwarded to the Admissions Office of the University of Santa Clara. This fee will be used as a deposit on tuition.

LAW SCHOLARSHIPS

Law Scholarships are available for those students who give promise of outstanding careers as lawyers and public leaders. These scholarships are available for incoming students. In order to qualify for a scholarship, consideration will be given both to need and scholastic achievements. The continuation of the scholarship depends on the maintenance by the recipient of superior achievement in the study of law. All applications shall be made through the Office of the Dean.

ADMINISTRATION AND SUPERVISION

A. Registration

Directions for registering are mailed to each applicant with his letter of acceptance.

B. Attendance

Regular and punctual attendance at all classes is required. Records are computed from the first meeting of the class, not from the date of a student's entrance. It is within the discretion of each instructor when tardiness shall be regarded as an absence.

Any student who, during a semester, has been absent from a class more than twice the number of times that class meets per week is disqualified from that course and will receive a failure in the subject. Attendance records are kept from the first day of class instructions.

C. Examinations

Written final examinations are required at the end of each semester in all courses. All written examinations are conducted under the number system, that is, the students remain anonymous to the grader. Additional examinations may be scheduled at the option of the faculty. If a student is unable to take an examination at the time scheduled, he will notify the Office of the Dean in writing of such absence and the reason therefore, If the excuse is not acceptable, of if the student fails to give prompt

notice, a grade of "F" will be recorded. If the excuse is acceptable and the notice timely, the student may be permitted to take a deferred examination at the discretion of the faculty. The fee is $15.00 for all deferred examinations.

When a student fails a course, he will receive an "F." If he has a sufficient overall average (see paragraph E this section), he may be permitted to remain in law school and to retake the failed examination at the next regularly scheduled time. Upon retaking the examination, he will receive one grade lower than he actually makes on the examination. For example, if a student receives a "B" on his re-examination, he will be given a "C." No student will be permitted to repeat a failed course. If the student successfully passes the re-examination, the failed examination, nevertheless, will be computed in his overall average.

A student who has been dismissed from Law School because of academic deficiencies may petition the Dean in writing within sixty days of dismissal for permission to retake the failed examination(s) at the next scheduled examination period. At the discretion of the faculty, he may be given such permission, providing he has received no formal education from another school in the failed course.

The fee to retake the examination ($15.00) is to be forwarded with the petition.

D. Grading

The grade earned in each course is recorded by alphabetical designation. The grade of "A" denotes outstanding scholarship; "B" superior work; "C" satisfactory work; "D" unsatisfactory work (sufficient only for residence credit); "F" failing work, insufficient for scholastic and residence requirements. A student's academic rank is determined by his grade-point average, which is ascertained by dividing the number of units of work completed into the number of grade points scored in accordance with the following norms: A=4; B=3; C=2; D=1; F=0.

A candidate for a degree must gain not only the number of semester hours required in his college, but his work must meet a certain standard of excellence. In addition to the required number of semester hours necessary for graduation, each student must earn an average mark in all subjects of C or better.

E. Scholarship

First year students who fail to attain an over-all "C" (2.00) average at the end of their first two semesters of study may be required to withdraw from the College of Law.

No student will be permitted to register for the work of the third year unless he has attained an overall "C" (2.00) average at the end of the first two years.

F. Graduation Requirements

In order to graduate, the student must:

1. Have received credit for at least 84 units of law.
2. Have obtained in the work of his third academic year in law a general grade-point average of "C" with a weighted average of "C" for the work of the entire three years.
3. Have fulfilled the requirements of residence for three academic years in either this College of Law or some other approved law school, the last two academic years of which, in any event, must have been spent in residence at this College of Law.
   The degree of Bachelor of Laws will be conferred on those students who have fulfilled the requirements in 1, 2 and 3 above.

No student in the College of Law is permitted to take the State Bar Examination before he has completed successfully the course of study prescribed by the College of Law for the LL.B. degree, and until such successful completion of the course has been certified by the Dean of the College of Law. Immediate expulsion from the College of Law will follow any violation of this requirement.

G. Discipline

Students must observe the general disciplinary regulations of the University of Santa Clara, as well as rules of the College of Law. The administration reserves the right to terminate or restrict the attendance of any student at any time, or to remove from the list of candidates for a degree the name of any student should it be in the interest of the University.

H. Rights Reserved

The University and the College of Law reserve the right to advance the requirements for admission or graduation; modify the arrangement, content or materials of courses; change tuition fees, class and examination schedules and any regulations affecting the student body. Such changes shall become effective whenever the administration shall determine and may operate retroactively.

I. Graduation Honors

A candidate for the Bachelor of Laws degree who has a grade-point average of 3.00 to 3.24 graduates Cum Laude; one who has a grade point average of 3.25 to 3.49, Magna Cum Laude; and 3.50 and over, Maxima Cum Laude.

SUMMER SESSION

The courses in Law in the summer session are open to members of the Bar and to students who have satisfactorily completed their first year in law.

Courses taken in the summer session may be credited toward the professional degree, but time so spent may not be counted as a part of the period of residence required for the degree. In any case, it will generally be found advantageous to take one or more of the courses offered in the summer, in order to increase an opportunity for the election of more advanced or specialized courses in the third year.

For the summer session any applicant who submits proof of enrollment in good standing at a member school of the Association of American Law Schools may take courses for credit to be allowed by his parent school. The College of Law issues a separate bulletin for the summer session. Copies of the bulletin or information concerning the curriculum may be obtained by writing to the Office of the Dean.

No student will be allowed to attend summer sessions unless he has completed one full academic year in good standing at this College of Law or at his parent institution.

LAW

PROFESSIONAL COURSES

First Year

101. Legal Bibliography. (1) The study of the use of law books, including practical problems in the use of reports, statutes, encyclopedias, digests, periodicals and citation books.

102. Contracts. (3-3) Yr. The formation of contracts, offer and acceptance, consideration, joint contracts, joint and several contracts, third party beneficiary contracts, statute of frauds, excuses for non-performance, damages, remedies, recision, restitution.

103. Torts. (3-3) Yr. Liability and defenses for intentional and negligent injury to persons and property. Liability without fault. Causation, nuisance, survival and wrongful death. Misrepresentation, defamation, right of privacy, and malicious prosecution.

104. Property I. (3-3) Yr. The law of personal and real property. Landlord and tenant and modern land transactions. Easements and licenses, lateral and subjacent support, water rights, boundaries.

106. Crimes. (3) Substantive law of specific crimes and the nature of the criminal act.

107. Agency. (2) The relationship of principal and agent and its legal ramifications in the field of civil law.

108. LEGAL WRITING. (1) A course designed to give practical experience in writing legal memoranda.

110. JURISPRUDENCE. (2) The meaning of natural law and the development of scholastic philosophy. An analysis and comparison of the various schools of legal philosophy.

111. EQUITY. (3) Origin and nature of equity jurisdiction. Specific performance of contracts. Equitable relief.

SECOND YEAR COURSES

201. EVIDENCE. (3-3) Yr. The common law of evidence in civil and criminal trials with particular reference to Federal and California rules. Relevancy, competency and materiality. The hearsay rule and burden of proof.

202. BUSINESS ORGANIZATIONS. (3-3) Yr. The study of the elements of business organizations including partnerships, corporations and joint ventures.

203. WILLS AND ESTATES. (2) Intestate succession and testamentary capacity. Execution of formal and holographic wills. Revocation and revival. Pretermitted heir and lapsed gifts. Ademption, advancements, increase and exoneration.

204. PROPERTY II. (2) The law of future interests. The Rule in Shelley's Case, Doctrine of Worthier Title, Rule against Perpetuities, alienability, devisability and descendability. Powers of appointment. Problems of construction. Class gifts.

206. TRUSTS. (2) The nature and creation of a trust. The express, charitable, spendthrift and business trusts. Resulting and constructive trusts. Administration and termination. Rights and duties of the trustee and other parties.

109. PRACTICE COURT (APPELLATE). (1) Preparation and presentation of a case before an appellate tribunal including written briefs and oral argument.

412. COMMERCIAL TRANSACTIONS. (2-2) Yr. Transfer of title to personal property. Documents of title, conditional sales, risk of loss, warranties, statute of frauds. Liability for defects of title and remedies of buyer and seller.

THIRD YEAR COURSES

301. COMMUNITY PROPERTY. (2) The existence of the community and law of separate and community property. Property rights between husband and wife. Management, control and liability for debts.

302. PROCEDURE I. (3) Jurisdiction of California Courts. Summons, writs and statutes of limitations. Trial procedure, dismissal or non-suit, verdict, judgment and motion for new trial.

303. PROCEDURE II. (3) Nature of the civil action under the code. Parties, complaint, demurrer, answer, cross-complaint and reply. Demurrers to pleadings subsequent to complaint.

304. CONFLICT OF LAWS. (3) Sources and development of private international law. Jurisdiction of courts and foreign judgments. Conflict of laws with respect to procedure, wrongs, contracts, property, business organizations, and administration of estates.

305. CONSTITUTIONAL LAW (2-2) Yr. Judicial review. Immunities of federal and state governments. Federal delegated powers and reserved state powers. Federal powers as limitations on state powers. Individual rights as limiting federal and state powers.

207. ESTATE AND GIFT TAXATION. (2) Problems and procedures of estate and gift taxation as well as income taxation of estates and trusts. Problems of attribution in assignments of income.

306. PROFESSIONAL RESPONSIBILITY. (1) A study of legal ethics and professional standards. It encompasses the lawyer's responsibilities to client, profession and public. Students are required to participate in legal aid work.

308. FEDERAL INCOME TAXATION. (3) Federal Income Taxation of the individual corporation and partnership, including capital gains and losses, basic problems and tax-free exchanges.

ELECTIVES*

410. ADMINISTRATIVE LAW. (2) Procedures and practices before administrative tribunals. Executive, legislative and judicial control of the administrative process. The emphasis is on federal administrative law.

418. CREDITOR'S RIGHTS. (3) Debtor's choice of remedies. Petitions, claims and dividends of creditors. The bankrupt's exemptions and discharge. Powers and duties of trustee. Jurisdiction of courts. State insolvency proceedings.

403. LABOR LAW. (2) Survey of labor movement. Development of the common law. Statutes relating to union organization, recognition, collective bargaining and wages and hours. Strikes and picketing. Anti-injunction and anti-trust laws.

404. DOMESTIC RELATIONS. (2) Marriage, divorce, annulment and separation. Alimony and property settlements. Parent and child relationship. Guardianship and adoption. Rights and duties of spouses.

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*Some electives are offered only in alternate years.

405. SECURITY TRANSACTIONS. (2) Legal principles relating to the use of mortgages, deeds of trust, pledges, liens, chattel mortgages, conditional sales and trust receipts. Rights of redemption, discharge, subrogation and exoneration.

406. LOCAL GOVERNMENT LAW. (2) Analysis of the legislative process in municipalities, districts and counties. Duties and responsibilities of public officers and boards. Application of zoning, subdivision, annexation and building regulations to real property practice.

407. TRADE REGULATIONS. (2) Contracts and combinations in restraint of trade. Unfair competition, anti-trust laws and regulation of methods of competition. Governmental regulation of misrepresentation and pricing practices.

409. CRIMINAL PROCEDURE. (1) The procedural aspects of a criminal trial. Administration of criminal justice, with reference to the rights of criminal defendants under state and federal laws.

411. ESTATE PLANNING. (2) Lifetime and testamentary planning for the ordering and distribution of the client's property designed to achieve his legitimate objectives. Avoidance of estate shrinkage and unnecessary taxes.

413. NEGOTIABLE INSTRUMENTS. (3) Elements of negotiability. Negotiation, delivery, transfer and endorsement. The holder in due course. Real and personal defenses. Liability of parties. Discharge.

416. CANON LAW. (1) The Canon Law and the development of common law. Problems of lay representation before ecclesiastical tribunals. Emphasis upon the Code with respect to marriage, divorce, annulment, adoption, and related problems.

417. LEGISLATION. (2) The sources, scope and functions of legislative power, The organization and operation of legislative bodies. The legislative process. Interpretation of statutes. Drafting and enforcement of legislation.

SCHOOL OF SACRED THEOLOGY

Administrative Officers

Louis C. Rudolph, S.J., *President*
William A. Huesman, S.J., *Dean*
John J. Alhadef, S.J., *Librarian*

General Information

The University, renewing and strengthening earlier ties, has granted effective for the academic year 1957-58 and thereafter, the status of affiliation to Alma College, Los Gatos, California, as the University's School of Sacred Theology. Alma College, whose present registration is limited to members of the Society of Jesus in training for the priesthood, was formally incorporated by an act of the State of California, October 23, 1934, with the power to grant academic degrees; on August 22, 1945, it was given the status of a Pontifical Faculty of Theology by the Holy See and empowered to grant canonical degrees, retroactive to the date of the College's inception.

The affiliation consists in the following:

(1) The University is responsible for the academic performance of the School of Sacred Theology, and to this extent has a paralleling authority over the academic operation of Alma College. For this academic responsibility and authority the University acts as usual through its Board of Trustees, President, Academic Council (on which the Dean and another member of the Theology Faculty are seated), Academic Vice-President, Head Librarian and Registrar. Two other Committees review further appropriate matters, namely the Committee on Admissions and Academic Progress, and the Committee on Rank and Tenure, for areas involving standards and procedures. Graduates of Alma College receive appropriate degrees, the S.T.M. or the S.T.B., as approved candidates of the affiliated School of the University of Santa Clara.

(2) Alma College is a nonprofit tax-exempt educational corporation, enjoying canonical status as a Pontifical Faculty of Theology.

Purposes and Objectives

The School of Sacred Theology has a threefold purpose: First, to give the students a formation in the sacred and allied disciplines; second, to train them in the knowledge of source material, the practice of scholarly work and investigation, and the exercise of the art of teaching; third, to cultivate and advance knowledge in the field of sacred sciences.

Towards the attainment of these goals, the School of Sacred Theology defines its specific academic and professional objectives as follows: Main objective, the acquisition of that degree of theological formation necessary for the future activity of its graduates, whose interests are

inevitably wide and varied,—hence the acquisition of a corpus doctrinae derived from theological sources and method, and a knowledge of theological sources, methods and techniques; concomitant and correlative objectives, to make theology a vital influence in the lives of the students, to render theology the continuation and crown of the liberal education previously received, to impart the skills and techniques necessary in the priestly ministry, e.g., liturgical action, sacred eloquence, pastoral guidance, and to develop a recognition of the relevance of theology to the needs and concerns of man today.

Library

The library of the School of Sacred Theology is located on the Alma College campus, in its own building of modern design, completed in 1950, with a capacity of 110,000 volumes.

The book collection presently numbers approximately 52,000 volumes, primarily in the field of historical and current theology and collateral subjects as befits a professional library. The collection is particularly strong in biblical, patristic, conciliar, and papal documents in the works of the major dogmatic and moral theologians, in biblical commentaries, in canon law, and in modern theological journals (approximately 265 currently received).

The library makes readily available to faculty and students all the scholarly materials needed for research and instruction leading to licentiate and doctoral degrees in theological science according to Pontifical standards.

The library is further equipped with photostat camera, with microfilm reading apparatus, and with abundant carrels for private study.

Admission

Only students who have attained a Master's degree or its equivalent in Philosophy are admitted to courses leading to the Master (Licentiate) of Sacred Theology (S.T.M.); a Bachelor's degree in Philosophy is required for entrance to the courses leading to the Bachelor of Sacred Theology (S.T.B.).

Program and Degrees

Curricula

There are two curricula of study, the Master's curriculum (Licentiate) in which the emphasis is on theology as the disciplined formation of the student in the field, so that in time he can become a master of it and its method, and the Bachelor curriculum in which emphasis is placed upon the acquisition of theological information, so that the student learns what theology has to offer and becomes able to communicate its findings adequately to all classes of men.

Towards the accomplishment of these objectives, as they are to be differently achieved through the two curricula, the pattern of each curriculum follows a hierarchical order according to the greater importance and excellence of the various subjects.

The division of subjects in the Master's curriculum (Licentiate), as outlined in the Statuta Facultatum Theologiae et Philosophiae (1934) of the Society of Jesus, and developed more fully in its Ratio Studiorum Superiorum (1954), is as follows:

(1) PRINCIPAL DISCIPLINES. (Subjects essentially required for the accomplishment of the aims): Fundamental and Dogmatic Theology; Moral and Pastoral Theology; Sacred Scripture; Canon Law; Ecclesiastical History; Patrology, and Christian Archæology.

(2) AUXILIARY DISCIPLINES. (Subjects necessary for a proper treatment of the principal disciplines): Biblical Greek; Biblical Hebrew; Liturgy and its History; Oriental Theology; Ascetical Theology.

(3) SPECIAL DISCIPLINES. (Complementary courses, leading to a more thorough understanding of certain of the principal and auxiliary courses or to certain skills): various elective courses, as advanced work in the biblical languages; Sacred Eloquence; Ecclesiastical Rites.

Students in the Master's curriculum must also participate in a research seminar to demonstrate their aptitude for scholarly investigation in the field of theology.

Students in the Bachelor curriculum are not required to follow courses in Biblical Greek, Biblical Hebrew, Oriental Theology, and the special disciplines; but in keeping with the aims of this curriculum, there is added instruction in catechetical and pastoral methods, and in place of a research seminar there are academic demonstrations or exercises, through which the students must manifest their fitness to apply theology to the needs of the ministry.

DEGREES

Students complying with all the requirements above outlined, and attaining a sufficiently high level of academic performance in the various subjects to merit the qualification "probatus", after submitting a satisfactory thesis and successfully passing a comprehensive examination in the whole field of Sacred Theology, are awarded the degree of Master of Sacred Theology (S.T.M.).

Students in the Bachelor curriculum may gain the degree of Bachelor in Sacred Theology by successfully passing all the prescribed courses, as well as a comprehensive examination in the whole of Sacred Theology.

A. Principal Disciplines

Fundamental Theology

*301. De Revelatione (3) Critical examination of titles Messiah, Son of Man, Son of God in Synoptics, illustrating progressive revelation Jesus made of his identity; investigation of signs sealing his claims with divine approval. First Year.

302. Introductio in Evangelia et Actus Apostolorum. (2) Separate studies of Mark, Matthew, Luke, with investigation into nature of their literary interdependence and the oral tradition on which they drew. Critical appraisal of special character of Fourth Gospel. First Year.

303. De Inspiratione Sacrae Scripturae. (1) Formation and history of biblical canon. The fact and nature of biblical inspiration, inerrancy, and extension of biblical inspiration. First Year.

304. De Actu Fidei Theologicae. (2) Consideration of Faith in the Old Testament, Synoptics, Johannine writings, and St. Paul. Synthetic presentation of nature and qualities of Christian faith. First Year .

305. De Constitutione Ecclesiae Christi, eiusque Magisterio. (4) Synthetic study of concept of reality of the Church, exclusively in light of theological sources. Comprehensive presentation of origin and constitution of Church, and nature of its Magisterium. First Year.

306. De Proprietatibus Ecclesiae Christi. (2) Synthetic presentation of the distinctive properties of Christ's Church. The Church as the Mystical Body of Christ. Requirements for membership in Mystical Body, necessity of membership for salvation. First Year.

307. De Traditione. (2) A theological consideration of the meaning of Traditions as the living transmission of revelation through ecclesiastical media other than the written books of the Bible. First Year.

201. De Revelatione. (3) A more concentrated and selective treatment of the contents of course 301. First Year.

202. Introductio in Evangelia et Actus Apostolorum. (2) A more concentrated and selective treatment of the contents of course 302. First Year.

203. De Inspiratione Sacrae Scripturae. (1) A more concentrated and selective treatment of the contents of course 303. First Year.

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*Courses with Latin titles indicate that the lectures and recitations in these courses are regularly and predominantly given in Latin; the examinations for these courses are likewise in Latin.

204. De Actu Fidei Theologicae. (2) A more concentrated and selective treatment of the contents of course 304. First Year.

205. De Constitutione Ecclesiae Christi, eiusque Magisterio. (4) A more concentrated and selective treatment of the contents of course 305. First Year.

206. De Proprietatibus Ecclesiae Christi. (2) A more concentrated and selective treatment of the contents of course 306. First Year.

207. De Traditione. (2) A more concentrated and selective treatment of the contents of course 307. First Year.

Dogmatic Theology

*311. De Existentia et Natura Dei Unius. (2) A presentation, historical and systematic, of the content of revelation concerning the 'problem of God'; know-ability of God's existence by light of human reason; divine essence and attributes. Second, Third, and Fourth Years.

312. De Scientia et Voluntate Dei. (2) A theological treatment of divine knowledge and will, involving questions of scope and mode of divine cognition, salvific will, predestination. Second, Third, and Fourth Years.

313. De Divina Providentia et Gratia Actuali. (4) An historical and systematic treatment of revelation concerning divine providence in general, and towards man in particular through the bestowal of actual grace; nature and properties of this grace. Second, Third, and Fourth Years.

314. De Deo Creante. (2) A systematic theological study of the origin of the universe, with special emphasis on the problems concerning the origins of men and angels; nature of men and angels theologically regarded. Second, Third, and Fourth Years.

315. De Deo Elevante. (4) An historical and systematic treatment of the supernatural order, with special attention to its ultimate goal; initial supernatural state of man; original sin, nature and effects. Second, Third, and Fourth Years.

316. De Novissimis. (2) A dogmatic study of the Last Things, with special stress on recent studies in biblical theology, notably the place of the Last Things in the redemptive mission of Christ. Second, Third, and Fourth Years.

317-318. De Deo Trino in Se et in Nobis. (4-4) Yr. An historical and systematic study of the doctrine of the Trinity (dogmatic

*Courses noted as given to three years, viz., second, third, and fourth, are cycle courses taught every third year; those given to two years, e.g., first and second, are cycle courses taught in alternate years.

formulas, scriptural revelation, patristic elaboration, Scholastic schematization) and of the missions of divine persons to the soul in grace. Second, Third, and Fourth Years. Both semesters.

319. De Christologia. (4) An historical and systematic treatment of the Incarnation as found in the theological 'loci', with particular stress on the genesis and current relevance of early conciliar formulas. Second, Third, and Fourth Years.

320. De Soteriologia. (2) An historical and systematic study of the Atonement, with emphasis on a critical evaluation of the patristic elaboration and Scholastic schematization in the light of current biblical theology. Second, Third, and Fourth Years.

321. De Beata Maria Virgine. (2) Mariology, its nature and purpose. Mary as virginal Mother of God, prerogatives of divine maternity, function of Mary in the divine plan of man's redemption. Second, Third, and Fourth Years.

323. De Sacramentis I. (4-4) Yr. An historical and systematic treatment of the sacramental system in general, and of the Sacraments of Baptism, Confirmation, and the Holy Eucharist in particular. Second, Third, and Fourth Years. Both semesters.

324. De Sacramentis II. (4-4) Yr. An historical and systematic treatment of the remaining four Sacraments, viz., Penance, Extreme Unction, Holy Orders, Christian Matrimony. Second, Third, and Fourth Years. Both semesters.

211. De Existentia et Natura Dei Unius. (2) A more concentrated and selective treatment of the contents of course 311. Second, Third, and Fourth Years.

212. De Scientia et Voluntate Dei. (1) A more concentrated and selective treatment of the contents of course 312. Second, Third, and Fourth Years.

213. De Divina Providentia et Gratia Actuali. (4) A more concentrated and selective treatment of the contents of course 313 Second, Third, and Fourth Years.

214. De Deo Creante. (2) A more concentrated and selective treatment of the contents of course 314. Second, Third, and Fourth Years.

215. De Deo Elevante. (3) A more concentrated and selective treatment of the contents of course 315. Second, Third, and Fourth Years.

216. De Novissimis. (2) A more concentrated and selective treatment of the contents of course 316. Second, Third, and Fourth Years.

217-218. De Deo Trino in Se et in Nobis. (4-3) Yr. A more concentrated and selective treatment of the contents of courses 317-318. Second, Third, and Fourth Years.

219. De Christologia. (3) A more concentrated and selective treatment of the contents of course 319. Second, Third, and Fourth Years.

220. De Soteriologia. (2) A more concentrated and selective treatment of the contents of course 320. Second, Third, and Fourth Years.

221. De Beata Maria Virgine. (2) A more concentrated and selective treatment of the contents of course 321. Second, Third, and Fourth Years.

223. De Sacramentis I. (4-3) Yr. A more concentrated and selective treatment of the contents of course 323. Second, Third, and Fourth Years. Both semesters.

224. De Sacramentis II. (4-3) Yr. A more concentrated and selective treatment of the contents of course 324. Second, Third, and Fourth Years. Both semesters.

Sacred Scripture

325. Old Testament I. Prophetical and Sapiential Books. (4) General introduction to Sacred Scripture, involving a study of canon, texts, versions, principles of interpretation. Study of prophetism. Survey of major and minor prophets, with special attention to Isaiah and Jeremiah. Second, Third, and Fourth Years.

326. Old Testament II. Historical Books. (4) Study of Pentateuchal problem in light of current linguistic and archæological research. Survey of historical books, with emphasis on the Old Testament plan of salvation. Second, Third, and Fourth Years.

327. New Testament I. Synoptic Gospels and Johannine Literature. (4) Study of structure and content of each of four Gospels, Johannine Epistles, and Apocalypse. Exegesis of selected passages. Comparison of theology of Synoptic Gospels with Johannine Gospel and Epistles. Second, Third, and Fourth Years.

328. New Testament II. Acts of Apostles, Pauline and Catholic Epistles. (4) Introductory survey of Acts of Apostles. Life of St. Paul, chronology of Epistles with introduction to each; development of Paul's theology. Detailed exegesis of a single Epistle; selected passages from others. Second, Third, and Fourth Years.

Moral Theology

331. Theologia Moralis I-A. (5) A study of the theological bases of the general principles of Christian morality and of the theological virtues. First and Second Years.

332. Theologia Moralis I-B. (5) A study of the Ten Commandments and of the moral virtues, except chastity. First and Second Years.

333-334. Theologia Moralis II. (5-5) Yr. A study of the virtue of chastity and of the moral and canonical aspects of the Seven Sacraments. First and Second Years. Both semesters.

336. Methods of Interview and Counseling I. (1) Application of moral and ethical principles to individual problems. Techniques involved in the interview. Practical solutions to be given with regard to particular circumstances of personality, occupation and environment. First and Second Years. Both semesters.

337. Methods of Interview and Counseling II. (1) Continuation of preceding course. Third and Fourth Years. Both semesters.

338. Pastoral Theology. (1) Study of techniques for the apt performance of specialized forms of the sacred ministry, such as parochial duties, hospital chaplaincy, preparation of marriage cases. First and Second Years. Both semesters.

Canon Law

339. Ius Canonicum I. (3) A study of the general norms of Church Law. The notion of ordinary and delegated powers. Rights, privileges, and obligations of clerics, and certain questions concerning religious men and women. First and Second Years.

340. Ius Canonicum II. (3) A study of ecclesiastical legislation on sacred times and places, divine worship, ecclesiastical teaching, and temporal goods of the Church. Extensive treatment of legislation on delinquencies and penalties. First and Second Years.

Church History

351. Church History I. (3) Survey from Pentecost to end of thirteenth century, emphasizing life in primitive Church, monastic growth, General Councils, rise of papacy from its age of iron to feudal dominance under Innocent III. First and Third Years.

352. Patrology. (1) A study of the writings of the early Church Fathers under the form of literary history, thus providing general introduction to Patristics, and training in correct use of patristic argumentation. First and Third Years.

353. CHURCH HISTORY II. (4) Survey from Boniface VIII to present. Growth of laicism from Avignon to Renaissance, subsequent religious revolts and Catholic restoration. Struggle of post-Tridentine Church with Jansenism, Gallicanism, modern forms of statolatry. First and Third Years.

B. AUXILIARY DISCIPLINES

341. BIBLICAL HEBREW. (3) Study of the essentials of Hebrew grammar and the peculiar modes of semitic expression. Analysis of selected passages of the Hebrew Old Testament. First and Second Years.

343. BIBLICAL GREEK. (1) Study of the orthography, morphology, and syntax of New Testament Koine, stressing peculiarities of Koine in relation to Classical Greek. Analysis of selected passages of Greek New Testament. First and Second Years.

361. ORIENTAL THEOLOGY. (1) Study of history and present status of dissident Oriental Churches to understand ways and means of fostering reunion. Special emphasis on Oriental theological method, rites, attitudes, customs. First and Second Years.

365. LITURGY. (1) Study of Sacraments and other ecclesiastical rites for a better understanding of the function performed by liturgy in the life of the Church. First and Second Years.

367. ASCETICAL THEOLOGY. (1) A study of the nature of Christian asceticism and mysticism, particularly in the light of the historical genesis and structural analysis of St. Ignatius' "Spiritual Exercises". First and Second Years.

C. SPECIAL DISCIPLINES

371. ADVANCED HEBREW. (2) Greater mastery of grammar, syntax and vocabulary through further readings in the Hebrew text of the Old Testament. Special emphasis on semitic literary forms and psychology for understanding of text. Elective.

373. ADVANCED BIBLICAL GREEK. (2) A sight reading course of selected New Testament documents, with primary emphasis on linguistics. Elective.

380. SPEECH COMPOSITION AND PRESENTATION. (1) Audience analysis, analysis of structure and form, organization of material, basic voice and bodily action for speech. First Year.

381. ADVANCED PUBLIC SPEAKING AND ORAL INTERPRETATION. (1) Development of techniques of analysis and presentation for reading aloud, the application of the principles of speaking and reading to a variety of forms. Speech and sermon situations. Second Year.

395. PULPIT FORMS AND TECHNIQUES. (1) Sermon composition, the various sermon patterns, and presentation of written sermons. Third Year.

396. RESEARCH SPEECH SEMINAR. (2) Projects in the theory of speech as applied to varied sermon problems. Elective course for Fourth Year.

398. ECCLESIASTICAL RITES. (1) Special instruction and practice in the rubrical administration of the Sacraments, in the manner of saying Mass, and performing other sacred functions. Third Year.

231. CATECHETICS. (1) An historical and speculative study of catechetical instruction in the basic doctrines and practices of the Christian Faith, with special emphasis on proper finality, structure, methodology of presentation. Second, Third, and Fourth Years.

291. THEOLOGY WORKSHOP I. (1) Group participation in the study of the proper and effective presentation of selected theological topics to lay audiences. Third Year.

292. THEOLOGY WORKSHOP II. (1) Continuation of preceding course. Fourth Year.

399. THE SEMINAR. The Master's (Licentiate) curriculum seminar is a group research project under the direction of a professor, aiming at the formation of the student in the method of scholarly theological investigation and in the art of communicating the findings of research through writings and other media. The normal conduct of the seminar involves the selection of a single theme or topic, the various aspects of which are distributed among the individual participants for their investigation. The findings of each are critically discussed and evaluated by all in the group meetings. To show his competence for scholarly work in the field of theology, each participant is obliged to submit a paper, following the norms of Campbell's A FORM BOOK FOR THESIS WRITING, on some aspect of the general theme of his seminar. These papers are kept on file in the Alma College library. Seminar papers of greater merit and significance are published in the ALMA STUDIES: A THEOLOGICAL REVIEW, a semi-annual publication of the students of Alma College.

de Saisset Art Gallery

DEGREES CONFERRED

June 4, 1960

HONORARY DEGREE

Doctor of Letters

Edwin W. Pauley

DEGREES IN COURSE

SCHOOL OF SACRED THEOLOGY

Presented at Alma College, Los Gatos, California

Master of Sacred Theology

Reverend Robert J. Brophy, S.J., M.A.
Reverend Anthony B. Brzoska, S.J., M.A.
Reverend John P. Callanan, S.J., A.B.
Reverend Mario L. Capitolo, S.J., B.S.E.E.
Reverend John W. Clark, S.J., M.A.
Reverend Donald E. Mason, S.J., A.B.
Reverend Donald J. McHugh, S.J., A.B.
Reverend James N. Meehan, S.J., M.A.
Reverend William J. Perkins, S.J., A.B.
Reverend Charles T. Phipps, S.J., A.B.
Reverend Carlo A. Weber, S.J., M.A.
Reverend James A. Wyse, S.J., A.B.

Bachelor of Sacred Theology

Reverend William H. Bichsel, S.J., A.B.
Reverend Joseph W. Conyard, S.J., A.B.
Reverend Robert F. Corrigal, S.J., A.B.
Reverend William F. Deeney, S.J., M.A.
Reverend James E. Jacobson, S.J., A.B.
Reverend Charles F. Koch, S.J., A.B.
Reverend George E. Krivanek, S.J., A.B.
Reverend Joseph W. Morris, S.J., A.B.
Reverend Eugene E. Pierre, S.J., A.B.
Reverend Robert F. Rekofke, S.J., A.B.
Reverend Joseph D. Ringwood, S.J., A.B.
Reverend Martin I. Rock, S.J., A.B.
Reverend Elmer J. Schwegman, S.J., B.S.
Reverend Robert R. Taheny, S.J., A.B.

GRADUATE DIVISION

Master of Arts

History

Michael Donald Hennen, B.S.
University of Santa Clara

John Andrew Kaska, B.S.
University of Santa Clara

James M. O'Keefe, B.S.
University of Santa Clara

Bachelor of Laws

Harold Thomas Alphonse, B.S.
University of Santa Clara
Victor Anthony Bertolani, B.S.
University of Santa Clara
Philip Steven Bianco, B.S.
University of Santa Clara
Frank P. Borelli, Jr., B.S.
University of Santa Clara
William Francis Brown, Jr., B.A.
University of Santa Clara
Frank V. Bruno, Jr., B.S.
University of Santa Clara
Kenneth Byung-Cho Chang, B.A.
Earlham College, Richmond, Ind.
Elliott Dennis Chielpegian, B.S.
University of Santa Clara
William H. Collard, B.A.
Sacramento State College
Robert J. Connelly
John Thomas Dawson, B.A.
Seattle University
Alfred Atillio Delucchi, B.S.
University of California
William Frank Delucchi, B.A.
University of Santa Clara
Daniel Edward Donovan, B.A.
San Jose State College
Ernest W. Dunn
*Harry Warren Feldman
William Ross Giffen, B.A.
University of Santa Clara
Philip Howard Gillin
Floyd Sherwood Hill
Joseph Philip Donald Kern, B.S.C.
University of Santa Clara
Albert F. Knorp, Jr., A.B.
Stanford University
Roy Geis MacFarland, B.S.
University of Santa Clara
Thomas J. MacIvor, B.S., M.A.
Drake University
Colorado State College
*Frederick Bell Maguire, Jr., B.S.
University of Santa Clara
William Frank Marinovich, B.S.
University of Santa Clara
Allan Willis Nicholson
John Edward Nolan, B.S.
University of Santa Clara
Dan Oneal, A.B.
Stanford University
William R. Pardee, B.S.C.
University of Santa Clara
Alfred Arnulfo Perez, A.B.
San Jose State College
Karl Nile Stewart
Bradley Alan Stoutt, B.S.
University of Santa Clara
James Roland Tormey, Jr.
Gerald Charles Vanoli, B.S.
University of San Francisco

Bachelor of Arts

Economics

Michael A. Burke
Allen Joseph Caparelli
Glenn Lewis Frizzell
Peter Aloysius Giannini
Searle M. Kelly
Edward A. Ladrech
*Norman E. Matteoni
Albert Samuel Owen, Jr.
Byron William Schnetz
Louis Charles Somavia-Moore
Frank Adolph Sousa

English

Malcolm Blaine Barnett
Dominic Richard Bianchi
Harry Taylor Chase, Jr.
Albert James Clarkson
‡James W. Douglass
David D. Doyle
Timothy Regan Finney
J. Michael Nagle, Jr.
Paul Roman Neumann
Ronald Henry Schmidt
James Francis Seagrave

*Cum Laude.
‡Maxima Cum Laude.

History

John A. Bach
Philip John Barry
Michael Larkin Burns
Richard Warren Creighton
George Melvin Gardiner, Jr.
Donald Edward Giacomini
Ryan Richard Hansen
Paul Anthony Herbst
Donald A. Johnson
Wells Jude Longshore
Thomas J. McGlynn
Dennis Francis Miller
Norwood Anthony Nedom
*Charles Robert Ray
Lawrence P. Schechtel, Jr.

Philosophy

*Louis M. Castruccio
Gabriel A. Gutierrez
*John G. Jardine, Jr.
Louis W. Jenkins
Peter Cain Kerner
Martin Francis Sullivan

Political Science

Alexander Winn Brindle
John Thomas Casey, Jr.
Richard L. Harrigan
Thomas Charles Hastings
James Donald Kenny
George W. Korte
Martin Fermin Larrey
Michael Summers Lynch
†Leon Edward Panetta
†Jon William Peterson
Michael Ambrose Ryan
James C. Spadafore
Joseph Probert Stretch

Pre-Legal

John Thomas Crowe

Sociology

Ronald Max Andersen
Wilbur W. Hansen, Jr.
Jon Nicholas Kulish

Spanish

‡Gabriel L. Pinheiro

Bachelor of Science

Biology

Joseph Anson Brock
George M. H. Chun
Edward Stephen Gallagher
John Pierre Olivie
Raymond Joseph Rishwain
*Melvin Francis Russi, Jr.
David Lee Stout

Chemistry

†Cornelius Timothy Moynihan

Mathematics

Bernard J. McGuire

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*Cum Laude.
†Magna Cum Laude.
‡Maxima Cum Laude.

Physics

*David Paul Bortfeld
A. Martin Buoncristiani
*Terry Michael Flanagan
Robert Gordon Ponzini
Raymon C. Riordan
*Thomas Robert Sandin
Michael J. Stomp

Bachelor of Science in Commerce

Edward M. Alvarez
Ernest Lawrence Baciocco
Richard Louis Basile, Jr.
George E. Botelho
Patrick J. Carroll
Marios R. Cavadias
Linus G. K. Chock
William Francis Cuneo
Shevlin Francis de la Roza
Michael Clay DePrie
James Francis Derry
Gary Oliver Duff
Richard N. Erbst
Burke Antone Ferrari
Arnold John Finocchio
William Kinmont Flint
Fredrick Paul Fruhling
Robert Martin Fuchslin
William Vincent Giammona
Joseph John Giraudo
Gregory Louis Givvin
Joseph H. Glaab
Daniel David Greenwood
Richard L. Hall
Thomas Michael Hedberg
William F. Johnson, Jr.
Dennis J. Kehoe
James Donald Kenny
Larry Dean Kinser
John Carl Kirby
Robert L. Kirrene
Richard Oliver Kwapil, Jr.
Malcolm T. Laitinen
*Robert A. Lawrence
John Peter Leatham
Martin Michael Lee, Jr.
Daniel E. Lester
Dale Fernand Lestum
*Francisco Jose Linares B.
Robert Alan Maloney
Eugene A. Marrone
Dennis Warren McCosker
James Morgan McGrath, Jr.
A. Ryan McKeon, Jr.
John Elton Mooney
James Brendan Morin
John Michael Murphy
Daniel F. Murtha
William Maurice Necoechea
Joseph P. O'Connor, Jr.
Michel Joseph Orradre
Ralph C. Paoli
Monte Darwin Pistoresi
Leslie Edwin Powers II
Sandro Joseph Recchio
Dennis Paul Riopel
Richard Lawrence Roach
Juan Jose Rocha
Joseph P. Royere
James F. Russi
William George Schroder
Joseph Louis Sheaff, Jr.
John F. Sheela
Roger Hayne Sheerin
George Lawrance Singewald, Jr.
John A. Sobrato
*Jerry Patrick Soderberg
Salvatore Richard Spano
Eugene Alfred Stelzer
William Richard Tagmyer
Gordon Roy Tassi
Jeffrey Blaine Thomson
Walter L. Valen
Paul Amon Vert

Bachelor of Civil Engineering

Frank William Brady
Donald John Bruzzone
Frank Thaddeus Cannizzaro
Theodore Anthony Cicoletti
Arthur Charles Devincenzi
Roy Alfred Galli
William A. Gissler
Jorge Ulises Herdocia R.
William L. Hess
Edwin B. Louis
John Neil Majerus
Richard Edward McGough
Maurice Francis O'Connor
Robert B. Pedroncelli
Guillermo Elias Quijano, Jr.
William Charles Webb

*Cum Laude.

Bachelor of Electrical Engineering

Everett Alvarez, Jr.
Thomas Joseph Besmer
William Nick Brasile
Agostino Burzio
Edward Francis Carr
Dino Rino Ciarlo
John Eugene Cuneo
Thomas P. Desmond
Anthony David Ferrari
Philip Albert Froess
Michel Humblet
†Harmon W. Johnson
James Vincent Kentzel
William R. Klauer
Paul C. L. Lang
Joseph Robert Lucchesi
Kenneth Robert Luschar
Lismore Thomas Maino, Jr.
Neil F. McCallion
William Charles Miller, Jr.
Ronald H. Ohlfs
Louis Luciano Reginato
Robert Peter Scribante
William Raymond Shellooe
Edward Charles Sins
Frank John Sordello
Dennis M. Talbott
Harry Walter Webb, Jr.
Philip Robert Webb

Bachelor of Mechanical Engineering

Yater F. Allen
Gerald Andrew Benedetti
Robert L. Bresniker
Robert Michael Coston
Leonard Joseph Enos
David W. Evans
Robert Charles Grinsell
Robert J. Hall
Terry Rodes Hornback
Donald Eugene Lintz
Michael B. McKay
Ernst Meyer
Michael Francis Mullin, Jr.
John Donald Purl
Nick Anthony Radovcich
James Patrick Segurson
Wain Wilford Stowe
Peter James Wagner
Robert Edward Zeman
Norman Lewis Ziomek

†Magna Cum Laude.

Students Receiving Commissions as Second Lieutenants in the United States Army Reserve Corps

Reserve Officers Training Corps

***Jerry P. Soderberg
Armor

*Leon E. Panetta
Army Intelligence (Transportation Corps)

*John T. Crowe
Artillery

***Jon N. Kulish
Armor

*Louis M. Castruccio
Artillery

***William A. Gissler
Corps of Engineers

***Wain W. Stowe
Corps of Engineers

*Monte D. Pistoresi
Army Intelligence (Signal Corps)

Linus G. K. Chock
Signal Corps

George E. Botelho
Artillery

*Jon W. Peterson
Army Intelligence (Artillery)

Theodore A. Cicoletti
Corps of Engineers

*Wells J. Longshore
Army Intelligence (Ordnance Corps)

Edwin B. Louis
Artillery

William R. Shellooe
Army Security (Corps of Engineers)

John P. Leatham
Infantry

Philip R. Webb
Army Security (Quartermaster Corps)

Leonard A. W. Enos
Corps of Engineers

Charles R. Ray
Army Intelligence (Artillery)

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Army Security (Signal Corps)

*Norwood A. Nedom
Infantry

Yater F. Allen
Artillery

Dennis F. Miller
Army Intelligence (Signal Corps)

Joseph R. Lucchesi
Ordnance Corps

**Richard L. Roach
Armor

Lawrence P. Schechtel, Jr.
Army Security (Signal Corps)

Thomas C. Hastings
Army Intelligence (Ordnance Corps)

James D. Kenny
Transportation Corps

Ralph C. Paoli
Armor

Michael S. Lynch
Armor

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Infantry

Sandro J. Recchio
(Quartermaster Corps)

William R. Tagmyer
Army Intelligence (Corps of Engineers)

Michael C. DePrie
Infantry

Joseph P. Stretch
Army Intelligence (Armor)

Daniel D. Greenwood
Armor

Joseph H. Glaab
Infantry

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*Distinguished Military Graduate
**To be commissioned at a later date.
***Distinguished Military Graduate receiving Regular Army Commission.

**Dennis P. Riopel
Armor

Louis W. Jenkins
Army Intelligence (Adjutant General's Corps)

Alexander R. McKeon, Jr.
Artillery

Gordon R. Tassi
Military Police Corps

George W. Korte
Military Police Corps

Peter A. Giannini
Army Intelligence (Quartermaster Corps)

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Signal Corps

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Artillery

Marios R. Cavadias
Artillery

Joseph P. Royere
Ordnance Corps

Daniel F. Murtha
Artillery

**To be commissioned at a later date.

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The Silver Medal (resident student) — James F. Russi. Honorable mention: Joseph A. Brock, Michael B. McKay.

The Silver Medal (non-resident student) — Norman E. Matteoni. Honorable mention: James B. Morin, Thomas M. Hedberg.

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The Handlery Prize — Norwood A. Nedom.

The Owl Prize — John C. Morrison.

The Sourisseau Prize — John G. Jardine, Jr.

The Ryland Prizes — Daniel F. Baedeker; Curtis M. Caton.

The Dramatic Art Prize — Alfred T. Barson.

The Joseph M. McDavitt Prize — John G. Jardine, Jr.

The Michael Shallo Prize — Leon E. Panetta.

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The Delta Sigma Pi Key — Francisco J. Linares B.

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The Schwartz Finance Prize — Louis M. Castruccio.

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The Chargin Prize — Victor A. Bertolani.

The Outstanding Law Graduate Award—William H. Collard.

The Community Leadership Awards — Victor A. Bertolani; William F. Marinovich; Joseph P. D. Kern; William F. Brown.

The Santa Barbara Medals — Senior: Jerry P. Soderberg; Junior: Keith G. Abler; Sophomore: Paul W. Mugar; Freshman: Thomas H. Bugbee.

The Medal of the Association of the Army of the United States — Junior: William T. Tsushima.

The Department of the Army Cadet Ribbon—Senior: John T. Crowe; Junior: Richard L. Bernacchi; Sophomore: Mervin E. Newton; Freshman: John L. Arnold.

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